UNIVERSITY OF DELHI

No. CNC-II/093/2017-18/49
Delhi, the 08th May, 2017

NOTIFICATION
Sub: Amendments to Ordinances

The following Amendments to Ordinances and Appendices to the Ordinances of the University passed by the Executive Council at its meeting held on 28th Feb, 2017/07th March, 2017, are notified for information of all concerned:

1. **Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding corrections in Certificate and Diploma courses in Gifted Education. (E.C. 28.02.2017/07.03.2017)**

Description	Existing	Amended
Post-Graduate Diploma in Counseling and Mental Health **Reservation of seats**	General seats 15	General seats 10
GE-I: Certificate Course in Education of Gifted Students **Reservation of seats**	General seats 15	General seats 10
GE-I: Certificate Course in Education of Gifted Students **Course Scheme Column no. 4 for Module GE 1.1, Module GE 1.2, Module GE 1.3 and Module GE 1.4.**	30/70	40/60
GE-II: Diploma Course in Education of Gifted Students. **Duration of Course**	The program of study leading to Certificate Course in Education of Gifted Students will be of six months duration.	The program of study leading to Diploma Course in Education of Gifted Students will be of two semesters each will be of six months duration.
GE-II: Diploma Course in Education of Gifted Students. **Reservation of Seats.**	General seats 15	General seats 10
GE II: Diploma Course in Education of Gifted Students. **Course Structure**	The Certificate Course in Education of Gifted Students will be of six months duration	The Diploma Course in Education of Gifted Students will be of one year duration, divided into two semesters

GE-II: Diploma Course in Education of Gifted Students. **Course Scheme Column no. 4 for Module GEII.1, Module GEII.2, Module GEII.3, Module GEII.4, Module GEII.6, Module GEII.7, Module GEII.8 and Module GE.II.9**	30/70	40/60

2. Amendments to Ordinance XIV-A of the University related to the Authorities – "Faculties" of the University. (Page No. 375,376 & 378 of University Calendar Vol –I (2004)) (E.C. 28.02.2017/07.03.2017)

Clause	Existing	Amended
Clause 1	1. The following shall be the Departments comprised in the Faculty of Arts: Department of English Department of Philosophy Department of Sanskrit Department of Hindi Dept. of Germanic and Romance Studies Dept. of Library & Information Science Department of Urdu Department .of Modern Indian Language & Literary Studies Department of Buddhist Studies Department of Linguistics Department of Psychology Department of Arabic Department of Persian Department of Panjabi	2. The following shall be the Departments comprised in the Faculty of Arts: xxx xxx xxx ***Add the following:*** *Department of Slavonic and Finno-Ugrian Studies*
Clause 14	14. The following shall be the department comprised in the Faculty of Applied Social Sciences and Humanities:	14. The following shall be the department comprised in the Faculty of Applied Social Sciences and Humanities: xxx xxx xxx

	Department of Business Economics Department of Slavonic and Finno-Ugrian Studies	***Delete the following:*** Department of Slavonic and Finno-Ugrian Studies

3. Amendments to Appendix-II to Ordinance V(2) & VII and to all other relevant Ordinances of the University related to the changes in the mode of evaluation of the following courses from academic session 2016-17. (Page No. 226-228 of University Calendar Vol-II (1989)) (E.C. 28.02.2017/07.03.2017)

1) Certificate Course in Chinese Language (Part-time)
2) Certificate Course in Japanese Language (Part-time)
3) Certificate course in Korean Language (Part-time)
4) Diploma Course in Chinese Language (Part-time)
5) Diploma Course in Japanese Language (Part-time)
6) Diploma Course in Korean Language (Part-time)
7) Advance Diploma Course in Japanese Language (Part-time)
8) Advance Diploma Course in Korean Language (Part-time)
9) Advance Diploma Course in Chinese Language (Part-time)

Existing	Amended
The final examination will consist of three parts with a total of 400 marks. (A) Two written papers (100 marks each) of 3 hours duration each: • Paper – I: Script and Translation • Paper – II: Grammar and Comprehension (B) Audio-oral test (100) (C) Internal assessment (100 marks) based on performance in periodical tests and class performance.	The final examination will consist of three parts with a total of 400 marks. (A) xxx xxx xxx (B) xxx xxx xxx (C) Internal assessment (100 marks) - A written test for 50 marks will be held in November/ December and an oral test for 50 marks in February/ March for the purpose of calculation of internal assessment marks.
Students who get a minimum of 40% in the written aggregate, 40% in oral, 40% in Internal Assessment and 45% marks in the overall aggregate will be eligible for the award of 'Certificate in Chinese Language'. Those who obtain 75% and above in the aggregate, will be declared to have passed the examination with distinction.	Students who get a minimum of 50% in overall aggregate will be considered as having successfully completed the course. Students with 75% marks and above in the aggregate, will be declared to have passed the examination with distinction.

4. Amendment to Ordinance XXVIII of the Ordinances of the University regarding "Dr. Dev Raj Seth & Smt. Sushila Seth Scholarship". (Page No. 723 of the University Calendar Volume - I (2004) (E.C. 28.02.2017/07.03.2017).

111. Dr. Dev Raj Seth & Smt. Sushila Seth Scholarship

Existing	Amended
1. There shall be one scholarship to be known as "Dr. Dev Raj Seth & Smt. Sushila Seth Scholarship" to be awarded every year to two girl students studying in Delhi University out of the annual income accrued from the endowment of Rs. 50,00,000/- (Fifty Lakhs Only) made by Dr. Mira Seth.	1. There shall be one scholarship to be known as "Dr. Dev Raj Seth & Smt. Sushila Seth Scholarship" to be awarded every year to two girl students studying in Delhi University out of the annual income accrued from the endowment of **Rs. 60,00,000/- (Sixty Lakhs Only)** made by Dr. Mira Seth.
2. to 9 xxx xxx xxx xxx	2. to 9 xxx xxx xxx xxx

5. Amendments to Appendix-II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding introduction of B.Sc. (Hons.) Environmental Sciences under Choice Based Credit System (CBCS) from academic session 2016-17. (E.C. 28.02.2017/07.03.2017)

B.Sc. (Hons.) in Environmental Sciences

Course	Credits*	
	Theory + Practical	**Theory + Tutorial**
I. Core course – Theory (14 Papers)	14x4=56	14x5=70
II. Elective Courses (8 Papers)	14x2=28	14x1=14
A1. Discipline Specific Electives – Theory (4 Papers)	4x4=16	4x4=16
A2. Discipline Specific Electives Practical/Tutorial* - (4 Papers)	4x2=8	4x2=8
B1. Generic Electives/Interdisciplinary – Theory (4 Papers)	4x4=16	4x4=16
B2. Generic Electives/Interdisciplinary – Practical/Tutorial* (4 Papers)	4x2=8	4x2=8
III. Ability Enhancement Courses		
1. Ability Enhancement Compulsory Courses (AECC) – (2 Papers of 2 Credits each)	2x2=8	2x2=8

Environment Science & English/MIL Communication		
2. Skill Enhancement Courses (SEC) (2 Papers of 4 Credits each)	2x4=8	2x4=8
Total Credits	**144**	**144**

*wherever practical is mentioned there will be no tutorial and vice-versa.

Courses/Papers Sequence					
Year 1 Semester 1	**Year 1 Semester 2**	**Year 2 Semester 1**	**Year 2 Semester 2**	**Year 3 Semester 1**	**Year 3 Semester 2**
C1: Earth and Earth Surface Processes	C3: Water and Water Resources	C5: Ecology and Ecosystems	C8: Systematics & Biogeography	C11: Biodiversity & Conservation	C13: Environmental Pollution and Human Health
C2: Physics & Chemistry of Environment	C4: Land and Soil Conservation and Management	C6: Environmental Biotechnology	C9: Urban Ecosystem	C12: Organismal & Evolutionary Biology	C14: Natural Resources Management & Disaster Management
AECC1: English Communication/ MIL	AECC2: Environmental Studies	C7: Atmosphere & Global Climate Change	C10: Environmental Legislation & Policy	DSE1: Energy & Environment	DSE3: Natural Hazards & Disaster Management
GE 1* Environment & Society	GE 2* Human-Wildlife Conflict & Management	SEC1: Remote Sensing, Geographic Information System & Modeling	SEC2: Environment Impact & Risk Assessment	DSE2: Environmental Economics	DSE4: Solid Waste Management
		GE 3* Gender & Environment	GE 4* Green Technologies		

6. Amendments to Ordinance V(1), Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University relating to change in nomenclature of the MBA (Finance and Control) to MBA (Financial Management). (Page No. 279 of the University Calendar Volume I (2004) and 526 of the University Calendar Volume II (1989)) (E.C. 28.02.2017/07.03.2017).

S. No.	Existing Nomenclature	Amended Nomenclature
1.	MBA (Finance and Control)	MBA (Financial Management)

7. Amendments to Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University regarding syllabus of MBA (Financial Management). (Page No. 526 of the University Calendar Volume II (1989)) (E.C.28.02.2017/ 07.03.2017).

MBA (FINANCIAL MANAGEMENT) (FULL TIME)

Course Structure

The MBA (Financial Management) programme shall comprise of 28 courses – 24 compulsory courses and 4 elective courses. The elective courses shall provide the students a choice to acquire specialised knowledge in different areas of Finance. Each compulsory course as well as elective shall be of four credits. In addition to these credit courses, the department may offer non-credit courses and foundation courses depending upon the needs of the students.

The MBA (Financial Management) programme shall be in two parts i.e., Part I and II.

Part I

The schedule of Part I will be composed of two semesters, viz. Semester I and Semester II. The schedule of papers prescribed for Part I shall be as follows:

Semester I

101	Managerial Economics
102	Business & Corporate Laws
103	Financial Accounting
104	Business Statistics & Mathematics
105	Information Technology for Managers
106	Indian Financial System
107	Financial Management

Semester II

201	Macro Economic Theory and Policy
202	Management Accounting and Control Systems
203	Financial Analysis and Valuation
204	Quantitative Techniques for Management
205	Strategic Information Systems
206	Introductory Econometrics
207	Investment Analysis

Part II

The schedule of Part II will be composed of two semesters, viz. Semester III and Semester IV. The schedule of papers prescribed for Part II shall be as follows:

Semester III

301 Financial Services and Wealth Management
302 Business Management and Strategy
303 International Accounting
304 Portfolio Management
305 Financial Derivatives & Risk Management

Electives: Any two of the following:
306 Business Analytics
307 Tax Planning and Management
308 Enterprise Risk Management
309 Fixed Income Securities and Structured Finance Products
310 Corporate Governance and Corporate Social Responsibility
311 Marketing Management

Semester IV

401 Strategic Financial Management
402 Financial Econometrics and Equity Research
403 International Finance
404 Project Planning, Appraisal and Financing
405 Project Study

Electives: Any ***two*** of the following:

406 Mutual Fund and Alternative Investments
407 Real Estate Investment Management
408 Marketing of Financial Services
409 Bank Management and Credit Risk Analysis
410 Insurance Management
411 Natural Resources and Environmental Finance

The Department reserves the right to limit the choice for elective as well as non-credit courses, depending upon the availability of faculty and other resources.

The Department may offer foundation and non-credit courses in relevant areas as per requirements. Readings for papers may be reviewed by the Department from time to time. For greater academic inclusiveness, the Department may also offer short duration courses (not exceeding six months) using a combination of the papers in MBA (Financial Management). The details of such short duration courses may be worked out by the Department in due course of time.

Summer Training: As part of the course requirement, at the end of first year each student is required to undertake summer training for a period of 6 to 8 weeks in approved organisations. At the end of the summer training period, each student will be required to submit a certification as prescribed in the guidelines issued by the Department.

8. Amendments to Appendix II to Ordinance V (2) & VII and to all other relevant Ordinances of the University regarding revision of the following B.E. Courses under CBCS for the students admitted from the academic session 2016-17 (E.C. 28.02.2017/07.03.2017):

(1) Electronics and Communication Engineering
(2) Computer Engineering
(3) Instrumentation and Control Engineering
(4) Manufacturing Processes and Automation Engineering
(5) Information Technology
(6) Biotechnology
(7) Mechanical Engineering

SCHEME OF COURSE

TYPES OF COURSES

Courses are the subjects that comprise the B.E. programme.

1. A course may be designed to comprise lectures, tutorials, laboratory work, field work, outreach activities, project work, vocational training, viva, seminars, term papers, assignments, presentations, self-study etc. or a combination of some of these components.
2. The learning outcomes of each course will be defined before the start of a semester.
3. Courses are of three kinds: Core, Elective and Foundation.

(i) Core Course (CC): This is a course which is to be compulsorily studied by a student as a core requirement to complete the requirement of B.E. Course.

(ii) Elective Course: An elective course is a course which can be chosen from a pool of courses. It is intended to support the discipline of study by providing an expanded scope, enabling exposure to another discipline/domain and nurturing a student's proficiency and skill. An elective may be of following types:

a) **Discipline Centric Elective (ED)**: It is an elective course that adds proficiency to the students in the discipline.
b) **Generic Elective (EG):** It is an elective course taken from other engineering disciplines and enhances the generic proficiency and interdisciplinary perspective of students.
c) **Open Elective (EO):** It is an elective course taken from non-engineering disciplines that broadens the perspective of an engineering student.

(iii) Foundation Course: A Foundation course leads to knowledge enhancement and provides value based training. Foundation courses may be of two kinds:

a) **Compulsory Foundation (FC):** It is based upon content that leads to fundamental knowledge enhancement in sciences, humanities, social sciences and basic engineering principles. They are mandatory for all disciplines.

b) **Elective Foundation (FE):** It can be taken from among a pool of foundation courses which aim at value-based education. They may provide hands-on training to improve competencies and skills or provide education on human, societal, environmental and national values.

4. Each course contributes certain credits to the programme. A course can be offered either as a full course (4 credits) or as a half course (2 credits). A full course is conducted with 3 hours of lectures and either 1 hour of tutorial or 2 hours of practical work per week. A half course is conducted with 2 hours of lectures.
5. A student of undergraduate programme has to accumulate about 50% credits from Core courses; about 20% credits from Foundation courses; and the remaining credits from Elective courses to become eligible for award of the degree.
6. A course (full/half) may also be designed without lectures or tutorials. However, such courses may comprise of field work, workshop, engineering drawing, outreach activities, project work, vocational training, seminars, self-study, sports, skills enhancement etc. or a combination of some of these.
7. A project work/dissertation is considered as a special course involving application of the knowledge gained during the course of study in exploring, analyzing and solving complex problems in real life applications. A candidate completes such a course with an advisory support by a faculty member.
8. Apart from the above courses Audit courses may be offered. They do not carry credits but aim at expanding knowledge or bridging deficiency in knowledge or skills.

EXAMINATION AND ASSESSMENT

The following system will be implemented in awarding grades and CGPA under the CBCS system.

1. **Letter Grades and Grade Points:** A 10-point grading system shall be used with the letter grades as given in Table 1.

Table 1: Grades and Grade Points

Letter Grade	Grade point
O (Outstanding)	10
A+ (Excellent)	9
A (Very Good)	8
B+ (Good)	7
B (Above average)	6
C (Average)	5
P (Pass)	4
F (Fail)	0
Ab (Absent)	0

2. **Fail grade:** A student obtaining Grade F shall be considered fail and will be required to reappear in the examination. If the student does not want to reappear in an **elective**

course (that is, EG, ED, EO, FE *but not* CC or FC courses) then he/she can re-register afresh for a new elective course.

3. **Audit course:** For audit courses, 'Satisfactory' or 'Unsatisfactory' shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA.
4. **Fairness in assessment:** The CBCS promotes continuous evaluation system where the weightage of end semester examinations should not be more than 60%. The departments shall design its own methods for continuous evaluation. It shall have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching-learning methods. In this regard, checks and balances will be implemented to ensure fair and effective assessment and examination process.
5. **Computation of SGPA and CGPA:** The following procedure shall be used to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

   (i) The SGPA is the ratio of sum of the product of the number of credits and the grade points scored in all the courses of a semester, to the sum of the number of credits of all the courses taken by a student, that is:

   $$\mathrm{SGPA}(S_i) = \frac{\sum C_j \times G_j}{\sum C_j}$$

   Where C_i is the number of credits of the i^{th} course and G_I is the grade point scored by the student in the i^{th} course.

   (ii) The CGPA is also calculated in the same manner taking into account all the courses taken by a student over all the semesters of a programme:

   $$\mathrm{CGPA} = \frac{\sum C_i \times \mathrm{SGPA}(S_i)}{\sum C_i}$$

   Where S_i is the SGPA of the i^{th} semester and C_i is the total number of credits in that semester.

   (iii) The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

   (iv) CGPA shall be converted into percentage of marks if required, by multiplying CGPA with 10.

PROGRAMME STRUCTURE

1. The B.E. course consists of 8 semesters, normally completed in 4 years. The total span period cannot exceed 8 years.
2. The courses offered in each semester are given in the *Semester-wise Course Allocation* scheme of B.E. course.
3. The courses under FC and common pool of electives offered for students of all disciplines under FE, EG and EO categories are listed under separate tables in the

scheme. The discipline centric courses under CC and ED categories are listed separately.

4. A course may have pre-requisite course(s) that are given in the *Semester-wise Course Allocation scheme.*
5. A student can opt for a course only if he/she has successfully passed its pre-requisite(s).
6. A student has to register for all courses before the start of a semester.
7. After second year a student may register for courses leading to a minimum number of credits as prescribed in the scheme and a maximum of 28 credits. Normally, a student registers for courses leading to 22 credits.
8. B.E. course consists of 176 credits. A student shall be awarded the degree if he / she has earned 168 or more credits.

COURSE CODIFICATION

The codes for various undergraduate programmes are as follows:

(1) Biotechnology: BT
(2) Computer Engineering: CE
(3) Electronics and Communication Engineering: EC
(4) Instrumentation and Control Engineering: IC
(5) Information Technology: IT
(6) Manufacturing Processes and Automation Engineering: MA
(7) Mechanical Engineering: ME

EVALUATION SCHEME

The courses are evaluated on the basis of continuous assessment, mid-semester examinations and end-semester examinations. The weightage of each of these modes of evaluation for the different types of courses are as follows:

Table-2: Evaluation Scheme

Type of Course	**Continuous Assessment (CA), Theory**	**Mid-Semester Exam (MS), Theory**	**End-Semester Exam (ES), Theory**	**Continuous Assessment (CA), Lab**	**End-Semester Exam (ES), Lab**
FE courses	As specified in Table 3 of Foundation Electives				
CC/FC/ED/EG/EO Theory with Tutorial	25	25	50	Nil	Nil
CC/FC/ED/EG/EO Theory with Practical	15	15	40	15	15
Project I and Project II	Nil	Nil	Nil	40	60
Training	Nil	Nil	Nil	40	60
Audit Courses 1*	-	-	-	-	-
1*: The distribution of marks and the minimum marks required for getting "Satisfactory" for Audit courses will be determined by the Department.					

EVALUATION AND REVIEW COMMITTEE

The Committee of Courses and Studies in each department shall appoint one or more Evaluation-cum-Review Committees (ERC), each committee dealing with one course or a group of courses. This ERC consists of all faculty members who are likely to teach such course(s) in the group.

The ERC has the following functions-

(i) To recommend appointment of paper setters/examiners of various examinations at the start of each semester.
(ii) To prepare quizzes, assignments, test papers etc. for Continuous Assessment (CA), Mid-Semester examination (MS) and End Semester (ES) examination and to evaluate them. Normally, each concerned faculty member, who is also a member of ERC, will do this job for his/her class. However, in exceptional circumstances any part of the work may be entrusted to some other member of the ERC.
(iii) To consider the individual representation of students about evaluation and take remedial action if needed. After scrutinizing, ERC may alter the grades awarded upward/downward. The decision of the ERC shall be final.
(iv) To moderate assignments, quizzes etc. for courses given by each of the concerned faculty members for his/her class with a view to maintain uniformity of standards.
(v) To review and moderate the MS and ES results of each course with a view to maintain uniformity of standards.
(vi) To lay guidelines for teaching a course.

ATTENDANCE, PROMOTION AND DETENTION RULES

1. A student should normally attend all the classes. However, a student will be allowed to appear in the examination if he/ she has put in a minimum of 75% attendance separately in each course for which he / she has registered. A relaxation up to a maximum of 25% may be given on the production of satisfactory evidence that (a) the student was busy in authorized activities, (b) the student was ill.
2. A student should submit the evidence to the fact 1(a) and / or 1(b) above within seven working days of resuming the studies. Certificates submitted later will not be considered.
3. No relaxation in attendance beyond 25% is permitted in any case.
4. If a student with satisfactory attendance will be promoted to the even semester irrespective of his/ her results in the odd semester examinations.
5. If a student fails to secure a minimum of 22 credits after the completion of second semester, he/ she will not be allowed to register in the third semester till he / she secures a minimum of 22 credits.
6. If a student fails to secure a minimum of 44 credits after the completion of fourth semester, he / she will not be allowed to register in the fifth semester till he / she secures a minimum of 44 credits.
7. There shall be no supplementary examinations. A student who has failed in a course will have to re-register for the course in a subsequent year.

8. If a student fails in any core course during the first four semesters (without repeating a year), he/she will have to re-register for such courses after the fourth semester.
9. If the student does not want to reappear in an **elective course** (that is, EG, ED, EO, FE but not CC or FC courses) then he/she can re-register afresh for a new elective course.
10. After second year a student may register for courses leading to a minimum credits as prescribed in the scheme and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

DECLARATION OF RESULTS

1. The B.E course consists of 176 credits. A student will be awarded the degree if he/she has earned 168 or more credits.
2. CGPA will be calculated on the basis of the best 168 credits earned by the student.
3. The candidate seeking re-evaluation of a course shall apply for the same on a prescribed proforma along with the evaluation fee prescribed by the University from time to time only for the End Semester Examination within seven days from the date of declaration of result.
4. The Institution/University may cancel the registration of all the courses in a given semester if
   i. The student has not cleared the dues to the institution/hostel.
   ii. A punishment is awarded leading to cancellation of the student's registration.

CURRICULUM MODIFICATION

The curriculum will be updated regularly within a period of 5 to 10 years since last revision, to keep pace with the advancements.

CENTRAL ADVISORY COMMITTEE

There shall be a Central Advisory Committee consisting of the following

a) Dean, Faculty of Technology, Chairman
b) Head of Institution
c) Dean, Under Graduate Studies
d) Dean, Post Graduate Studies
e) Heads of Departments

This Committee shall have the following functions-

1. Lay guidelines for executing all the provisions and stipulations of the programme.
2. Give an interpretation of the rules in case of differences of opinion, which shall be binding on all.

ELECTRONICS AND COMMUNICATION ENGINEERING

Scheme - Semester-Wise Course Allocation

SEMESTER I													
Course Code	Type	Course	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
FC001	FC	Mathematics-I	3	1	0	4	25	25	50	-	-	None
FC002	FC	Computer Programming	3	0	2	4	15	15	40	15	15	None
FC003	FC	Electrical and Electronics Engineering	3	0	2	4	15	15	40	15	15	None
FC004	FC	Physics	3	0	2	4	15	15	40	15	15	None
FC005	FC	English –I	2	0	0	2	25	25	50	-	-	None
FExxx 1*	FE	Foundation Elective	-	-	-	2	-	-	-	-	-	-
			23-25 2*			**20**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by student under FE (Refer Table 3).												

SEMESTER II												
Course No.	Type	Course	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
FC006	FC	Mathematics-II	3	1	0	4	25	25	50	-	-	None
FC007	FC	English - II	2	0	0	2	25	25	50	-	-	None
ECC01	CC	Electronic Engineering Materials	3	1	0	4	25	25	50	-	-	None
ECC02	CC	Electronics I	3	0	2	4	15	15	40	15	15	None
ECCO3	CC	Digital Circuits and Systems	3	0	2	4	15	15	40	15	15	None
ECC04	CC	Electrical Machines	3	1	0	4	25	25	50	-	-	None
FExxx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			26-28 2*			**24**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3)												

AUDIT COURSES AFTER SEMESTER II					Evaluation Scheme	
Course No.	**Type**	**Course**	**LTP**	**Credits**	**Theory CA-MS-ES**	**Practical CA-ES**
ACxx	**Audit**	Audit Courses can be floated during summer break after 2nd semesters on: (I) Courses for improvement: These will not be shown on the degree. (II) Courses on new themes: These will be shown on the degree.	-	NIL	The evaluation scheme and minimum grades for getting "Satisfactory" level, will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	

AC: Audit Course

SEMESTER III													
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ECC05	CC	Mathematics III	3	1	0	4	25	25	50	-	-	None
ECC06	CC	Electronics II	3	0	2	4	15	15	40	15	15	None
ECC07	CC	Network Analysis and Synthesis	3	1	0	4	25	25	50	-	-	None
ECC08	CC	Signals and Systems	3	1	0	4	25	25	50	-	-	None
ECC09	CC	Electromagnetic Field Theory	3	1	0	4	25	25	50	-	-	None
FExxx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			23-25 2*			**22**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3).												

SEMESTER IV												
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	

ECC10	CC	Linear Integrated Circuits	3	0	2	4	15	15	40	15	15	None
ECC11	CC	Data Structures	3	0	2	4	15	15	40	15	15	None
ECC12	CC	Transmission Lines and Waveguides	3	1	0	4	25	25	50	-	-	None
ECC13	CC	Probability Theory and Communication	3	0	2	4	15	15	40	15	15	None
ECC14	CC	Control Systems	3	1	0	4	25	25	50	-	-	None
FExxx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			25-27 2*			**22**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3).												

B.E. ELECTRONICS AND COMMUNICATION ENGINEERING – AUDIT COURSES AFTER SEMESTER IV					**Evaluation Scheme**	
Course No.	**Type**	**Course**	**LTP**	**Credits**	**Theory CA-MS-ES**	**Practical CA-ES**
ACxxx	**Audit**	Audit Courses can be floated during summer break after 4th semester on: (i) Courses for improvement: These will not be shown on the degree. (ii) Courses on new themes : These will be shown on the degree.	-	NIL	The evaluation scheme and minimum grades for getting "Satisfactory' level, will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	

AC: Audit Course

B.E. ELECTRONICS AND COMMUNICATION ENGINEERING -SEMESTER V												
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ECC15	CC	Digital Signal Processing	3	0	2	4	15	15	40	15	15	None
ECC16	CC	Digital Communication	3	0	2	4	15	15	40	15	15	None
ECC17	CC	Microprocessor and its Applications	3	0	2	4	15	15	40	15	15	None

ECC18	CC	Antenna and Wave Propagation	3	0	2	4	15	15	40	15	15	None
1*	**EG/ED/EO**	Elective(s)	-	-	-	-	-	-	-	-	-	-
			2*			**16-28 3***						

1*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The course code will depend upon the elective(s) chosen by the student.
2*: The actual weekly load will depend upon the elective(s) chosen by the student.
3*: A student may register for courses leading to a minimum of 16 credits and a maximum of 28 credits. Normally, a student registers for courses leading to 22 credits.

B.E. ELECTRONICS AND COMMUNICATION ENGINEERING-SEMESTER VI

Course No.	Type	Course	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
ECC19	CC	Microwave Engineering	3	0	2	4	15	15	40	15	15	None
ECC20	CC	VLSI	3	0	2	4	15	15	40	15	15	None
ECC21	CC	Computer Networks	3	1	0	4	25	25	50	-	-	None
1*	**EG/ED/EO**	Elective(s)	-	-	-	-	-	-	-	-	-	-
			2*			**12-28 3***						

1*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The course code will depend upon the elective(s) chosen by the student.
2*: The actual weekly load will depend upon the elective(s) chosen by the student.
3*: A student may register for courses leading to a minimum of 12 credits and a maximum of 28 credits. Normally, a student registers for courses leading to 22 credits.

B.E. ELECTRONICS AND COMMUNICATION ENGINEERING-TRAINING AFTER SEMESTER VI

Course No.	Type	Course	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
ECC22 1*	**CC**	Training	--	-	-	2	-	-	-	40	60	None

1*: Students will undergo Training in the Industry/research organization/ reputed institution during the Summer vacation after sixth Semester. This will be evaluated as a VII Semester subject during end-semester examination.
Training gives exposure to students on the working of the industry on research directions and practical applications of Electronics and Communication Engineering and on work ethics.

B.E. ELECTRONICS AND COMMUNICATION ENGINEERING -SEMESTER VII												
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ECC22 1*	CC	Training	-	-	-	2	-	-	-	40	60	None
ECC23 2*	CC	Project-I	-	-	-	4	-	-	-	40	60	None
3*	**EG/ED/ EO**	Elective(s)	-	-	-	-	-	-	-	-	-	-
			4*			**6-28 5***						

1*: Training undertaken by students during the Summer vacation after sixth Semester will be evaluated as a VII Semester subject during end-semester examination.
2*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of the basic sciences, mathematics, engineering subjects and human values.
3*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The course code will depend upon the elective(s) chosen by the student.
4*: The actual weekly load will depend upon the elective(s) chosen by the student.
5*: A student may register for courses leading to a minimum of 6 credits and a maximum of 28 credits. Normally, a student registers for courses leading to 22 credits.

B.E. ELECTRONICS AND COMMUNICATION ENGINEERING -SEMESTER VIII												
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ECC24 1*	CC	Project-II	-	-	-	4	0	0	0	40	60	None
2*	**EG/ED /EO**	Elective(s)	-	-	-	-	-	-	-	-	-	-
			3*			4-28 4*						

1*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of various basic sciences, mathematics, human values and engineering subjects.
2*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 3-6.
3*: The actual weekly load will depend upon the elective(s) chosen by the student.
4*: A student may register for courses leading to a minimum of 4 credits and a maximum of 28 credits. Normally, a student registers for courses leading to 22 credits.

TABLE-3 LIST OF FOUNDATION ELECTIVES										
Code	**Name of Foundation Elective**	**LTP Allocation**			**Evaluation Scheme**					**Pre-Requisites**
					Theory			**Practical**		
		L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**MS**	
FE001	Sports-I	0	0	4	-	-	-	60	40	None
FE002	Sports-II	0	0	4	-	-	-	60	40	FE001
FE003	NSS	0	0	4	-	-	-	60	40	None
FE004	NCC	0	0	4	-	-	-	60	40	None
FE005	Corporate Social Responsibility	2	0	0	25	25	50	-	-	None
FE006	Environmental Sciences	2	0	0	25	25	50	-	-	None
FE007	Environment development and Society	2	0	0	25	25	50	-	-	None
FE008	Spoken Skills in English	2	0	0	25	25	50	-	-	None
FE009	Financial Literacy	2	0	0	25	25	50	-	-	None
FE010	Introduction to Indian society	2	0	0	25	25	50	-	-	None
FE011	Soft Skills and Personality Development	1	0	2	-	-	-	60	40	None
FE012	Business Communication and Presentation Skills	1	0	2	-	-	-	60	40	None
FE013	Theatre	0	0	4	-	-	-	60	40	None
FE014	Dance	0	0	4	-	-	-	60	40	None
FE015	Yoga	0	0	4	-	-	-	60	40	None
FE016	Digital Film Making	0	0	4	-	-	-	60	40	None
FE017	Workshop (Electrical and Mechanical)	0	0	4	-	-	-	60	40	None
FE018	Music	0	0	4	-	-	-	60	40	None
FE019	Sociology of development	2	0	0	25	25	50	-	-	None
FE020	Universal Human Values 1: Self and Family	2	0	0	25	25	50	-	-	None
FE021	Universal Human Values 2: Self, Society and Nature	2	0	0	25	25	50	-	-	FE020

TABLE 4: LIST OF DISCIPLINE CENTRIC ELECTIVES								
PART A: WITH PRACTICAL								
LTP Allocation			**Evaluation Scheme**					
			Theory			**Practical**		
L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**ES**	
3	**0**	**2**	**15**	**15**	**40**	**15**	**15**	
Code	**Name of Elective**		**Pre-Requisites**					
ECD 01	Statistical Signal Processing		ECC15					
ECD 02	Speech Processing		ECC15					
ECD 03	Image Processing		ECC15					
ECD 04	Wireless Communication		ECC16					
ECD 05	BICMOS AIC		ECC10					
ECD 06	Low power VLSI Design		ECC20					

ECD 07	Analog filter design	ECC10
ECD 08	Embedded System Design	ECC17
ECD 09	Computer Architecture & Digital Hardware design	ECC17
ECD 10	Microstrip Circuit Design	ECC12
ECD 11	Advanced Antenna theory and Design	ECC18
ECD 12	RF and Microwave Circuit Design	ECC19
ECD 13	Advanced DSP	ECC15
ECD 14	Digital System design using VHDL/Verilog	ECC03

TABLE 4 - PART B: DISCIPLINE SPECIFIC ELECTIVES WITH TUTORIAL							
LTP Allocation			**Evaluation Scheme**				
			Theory			**Practical**	
L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**MS**
3	**1**	**0**	**25**	**25**	**50**	**-**	**-**
Code	**Name of Elective**		**Pre-Requisites**				
ECD 15	Video Processing		ECC15				
ECD 16	Radar SP		ECC15				
ECD 17	Wavelets and applications		ECC15				
ECD 18	Cryptography		ECC15				
ECD 19	Pattern Recognition		ECC15				
ECD 20	VLSI DSP		ECC15				
ECD 21	Selected topics in SP		ECC15				
ECD 22	Detection and estimation theory		ECC16				
ECD 23	Optical fiber networks		ECC16				
ECD 24	Selected topics in Communication		ECC16				
ECD 25	Information theory		ECC16				
ECD 26	Satellite communication		ECC16				
ECD 27	Optical wireless Communication		ECC16				
ECD 28	MIMO Communication		ECC16				
ECD 29	Coding Theory		ECC16				
ECD 30	Telecommunication Switching		ECC16				
ECD 31	Wireless Sensor Networks		ECC16				
ECD 32	Cognitive Radio		ECC16				
ECD 33	Green Communication		ECC16				
ECD 34	Analog CMOS Design		ECC06				
ECD 35	Mixed Signal Design		ECC10				
ECD 36	IC Testing & Characterization		ECC20				
ECD 37	Electronic Design Automation		ECC20				
ECD 38	Optimization of CMOS Integrated Circuits		ECC20				
ECD 39	Selected topics in Analog Signal Processing		ECC20				
ECD 40	VLSI Technology & Design		ECC20				
ECD 41	System in Chip		ECC20				
ECD 42	Deep sub-micron CMOS IC Design		ECC20				

ECD 43	Semiconductor memory Design	ECC20
ECD 44	Device modeling and circuit simulation	ECC10
ECD 45	ASIC Design	ECC20
ECD 46	Pulse Digital Circuits	ECC03
ECD 47	Switching theory & Automata	ECC03
ECD 48	Robotics & Automation	ECC17
ECD 49	Computational Electromagnetics	ECC19
ECD 50	Radar and Navigation	ECC18
ECD 51	Phased Array Antennas	ECC18
ECD 52	Advanced Microwave Engineering	ECC19
ECD 53	Electromagnetic Interference and Compatibility	ECC09
ECD 54	RF MEMS and their Applications	NONE
ECD 55	Quantum Field Theory	NONE
ECD 56	Selected topics in Microwave Engineering	ECC19

TABLE 5

GENERIC ELECTIVES (GE)

A student may take any course offered by any department of the institute under the categories of core course (cc) and discipline centric elective (ed). However, such options shall be offered to a student as per prescribed guidelines of the institute

TABLE-6 LIST OF OPEN ELECTIVES

Code	Name of Open Elective	LTP Allocation			Evaluation Scheme					Pre-Requisites
					Theory			Practical		
		L	T	P	CA	MS	ES	CA	MS	
EO001	Technical Communication	3	1	0	25	25	50	-	-	None
EO002	Disaster Management	3	1	0	25	25	50	-	-	None
EO003	Basics of Financial Management	3	1	0	25	25	50	-	-	None
EO004	Basics of Human Resource Management	3	1	0	25	25	50	-	-	None
EO005	Project Management	3	1	0	25	25	50	-	-	None
EO006	Basics of Corporate Law	3	1	0	25	25	50	-	-	None
EO007	Biological computing	3	1	0	25	25	50	-	-	None
EO008	Basics of social sciences	3	1	0	25	25	50	-	-	None
EO009	Entrepreneurship	3	1	0	25	25	50	-	-	None
EO010	Social work	3	1	0	25	25	50	-	-	None
EO011	Intellectual Property and Patenting	3	1	0	25	25	50	-	-	None
EO012	Supply Chain Management-Planning and logistics	3	1	0	25	25	50	-	-	None
EO013	Organization Development	3	1	0	25	25	50	-	-	None
EO014	Industrial Organisation and Managerial Economics	3	1	0	25	25	50	-	-	None

EO015	Global Strategies and Technology	3	1	0	25	25	50	-	-	None
EO016	Engineering System Analysis and Design	3	1	0	25	25	50	-	-	None
EO017	Biology for Engineers	3	1	0	25	25	50	-	-	None
EO018	Energy, Environment and Society	3	1	0	25	25	50	-	-	None
EO019	Public Policy and Governance	3	1	0	25	25	50	-	-	None
EO020	Numerical Methods	3	0	2	15	15	40	15	15	None
EO021	Mathematical Statistics	3	1	0	25	25	50	-	-	None
EO022	Abstract and Linear Algebra	3	1	0	25	25	50	-	-	None
EO023	Optimization Techniques	3	1	0	25	25	50	-	-	None
EO024	Introduction to Mathematical Software and Programming Languages	2	0	4	15	15	40	15	15	None
EO025	Mathematical Finance	3	1	0	25	25	50	-	-	None
EO026	Quantum Electronics	3	0	2	15	15	40	15	15	None
EO027	Laser Systems and Applications	3	0	2	15	15	40	15	15	None
EO028	Optoelectronics and Photonics	3	0	2	15	15	40	15	15	None
EO029	Electromagnetic Theory and Waveguides	3	0	2	15	15	40	15	15	None
EO030	Polymer Science and Technology	3	0	2	15	15	40	15	15	None
EO031	Semiconductor Physics and Devices	3	0	2	15	15	40	15	15	None
EO032	Elements of Fibre Optics	3	0	2	15	15	40	15	15	None
EO033	Material Physics	3	0	2	15	15	40	15	15	None
EO034	Advanced Electromagnetic Theory and Relativity	3	0	2	15	15	40	15	15	None
EO035	Fibre and Integrated Optics	3	0	2	15	15	40	15	15	None
EO036	Condensed Matter Physics	3	0	2	15	15	40	15	15	None
EO037	Microwave	3	0	2	15	15	40	15	15	None
EO038	Fundamentals of Instrumentation and experimental techniques in Physics	3	0	2	15	15	40	15	15	None
EO039	Lasers and Photonics	3	0	2	15	15	40	15	15	None

COMPUTER ENGINEERING

Scheme – Semester Wise Course Allocation

B.E. COMPUTER ENGINEERING-SEMESTER I												
Course Code	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
FC001	FC	Mathematics-I	3	1	0	4	25	25	50	-	-	None
FC002	FC	Computer Programming	3	0	2	4	15	15	40	15	15	None
FC003	FC	Electrical and Electronics Engineering	3	0	2	4	15	15	40	15	15	None
FC004	FC	Physics	3	0	2	4	25	25	50	-	-	None
FC005	FC	English-I	2	0	0	2	25	25	50	-	-	None
FExxx 1*	FE	Foundation Elective	-	-	-	2	-	-	-	-	-	–
			23/25 2*			**20**	subject					
1* : The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3)												

B.E. COMPUTER ENGINEERING-SEMESTER II												
Course Code	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
FC006	FC	Mathematics-I I	3	1	0	4	25	25	50	-	-	None
FC007	FC	English-II	2	0	0	2	25	25	50	-	-	None
CEC01	CC	Discrete Structures	3	1	0	4	25	25	50	-	-	None
CEC02	CC	Data Structures	3	0	2	4	15	15	40	15	15	None
CEC03	CC	Digital Logic Design	3	0	2	4	15	15	40	15	15	None
CEC04	CC	Analog and Digital Communication	3	1	0	4	25	25	50	-	-	None
FExxx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	
			26/28 2*			**24**						
1* : The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3)												

B.E. COMPUTER ENGINEERING- AUDIT COURSES (AC) AFTER II SEMESTER					Evaluation Scheme	
Course Code	**Type**	**Subject**	**LT P**	**Credits**	**Theory CA-MS-ES**	**Practical** CA-ES
ACxxx	Audit	Audit Courses can be floated during summer break after 2nd semesters on: (I) Courses for improvement: These will not be shown on the degree. (II) Courses on new themes: These will be shown on the degree.	-	Nil	The evaluation scheme and minimum grades for getting "Satisfactory" level, will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	

B.E. COMPUTER ENGINEERING-SEMESTER III													
Course Code	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre Requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
CEC05	CC	Design and Analysis of Algorithms	3	0	2	4	15	15	40	15	15	None
CEC06	CC	Database Management Systems	3	0	2	4	15	15	40	15	15	None
CEC07	CC	Object Orientation	3	0	2	4	15	15	40	15	15	None
CEC08	CC	Computer Architecture and Organization	3	1	0	4	25	25	50	-	-	None
CEC09	CC	Analog Electronics	3	0	2	4	15	15	40	15	15	None
FExxx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	–
			26/28 2*			**22**						

1* : The course codes, LTP distribution and Evaluation Scheme for Foundation Electives (FE) are given in Table 3.
2*: The actual weekly load depends upon the elective chosen by the student under FE (Table 3).

B.E. COMPUTER ENGINEERING-SEMESTER IV												
Course Code	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
CEC10	CC	Micro-processors	3	0	2	4	15	15	40	15	15	None
CEC11	CC	Software Engineering	3	0	2	4	15	15	40	15	15	None
CEC12	CC	Computer Graphics	3	0	2	4	15	15	40	15	15	None
CEC13	CC	Computer Networking	3	0	2	4	15	15	40	15	15	None
CEC14	CC	Operating Systems	3	1	0	4	25	25	50	-	-	None
FExxx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	_
			26/28 2*			**22**						
1* : The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3).												

B.E. COMPUTER ENGINEERING- AUDIT COURSES (AC) AFTER SEMESTER IV					**Evaluation Scheme**	
Course Code	**Type**	**Subject**	**LTP**	**Credits**	**Theory CA-MS-ES**	**Practical CA-ES**
ACxxx	**Audit**	Audit Courses can be floated during summer break after 4th semester on: (i) Courses for improvement: These will not be shown on the degree. (ii) Courses on new themes : These will be shown on the degree.	-	Nil	The evaluation scheme and minimum grades for getting "Satisfactory' level, will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	

B.E. COMPUTER ENGINEERING – SEMESTER V												
Course Code	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
CEC15	CC	Theory of Computation	3	1	0	4	25	25	50	0	0	None

CEC16	CC	High Performance Computing	3	0	2	4	15	15	40	15	15	None
CEC17	CC	Compiler Construction	3	0	2	4	15	15	40	15	15	None
CEC18	CC	Modeling and Simulation	3	0	2	4	15	15	40	15	15	None
1*	EO/EG/ ED	Elective(s)	-	-	-	-	-	-	-	-	-	-
			2*			**16-28 3***						

1* : The LTP distribution, Evaluation Scheme and pre-requisite(s) for Elective courses are given in Tables 4, 5 and 6. The course code will depend upon the elective(s) chosen by the student.
3*: The weekly load will depend upon the electives chosen by the student from Tables 3, 4, 5 and 6.
4*: A student may register for courses leading to a minimum of 16 credits and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

B.E. COMPUTER ENGINEERING-SEMESTER VI

Course Code	Type	Subject	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
CEC19	CC	Computer Control Systems	3	1	0	4	25	25	50	-	-	None
CEC20	CC	IT Law and Ethics	2	0	0	2	25	25	50	-	-	None
CEC21	CC	Open Source Technologies	0	0	4	2	-	-	-	50	50	None
1*	EO/EG/ ED	Elective(s)	-	-	-	-	-	-	-	-	-	-
			2*			**8-28 3***						

1* : The course code, LTP distribution, Evaluation Scheme and pre-requisite(s) for Elective courses under EO, EG and ED will depend upon the electives chosen by the student as given in Tables 4, 5 and 6.
2*: The weekly load will depend upon the electives chosen by the student from Tables 4, 5 and 6.
3*: A student may register for courses leading to a minimum of 8 credits and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

B.E. COMPUTER ENGINEERING - INDUSTRIAL TRAINING AFTER VI SEMESTER

Course Code	Type	Subject	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
CEC22 *1	**CC**	Training	-	-	-	2	-	-	-	40	60	None

*1: Students will undergo training in the industry / research organization / reputed Institute during the Summer vacation after sixth Semester. This will be evaluated as a seventh Semester subject during end-semester examination.
Training gives exposure to students on the working of the industry, on research directions and practical applications of Computer Engineering and on work ethics.

B.E. COMPUTER ENGINEERING-SEMESTER VII

Course Code	Type	Subject	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
CEC221*	CC	Training	-	-	-	2	-	-	-	40	60	None
CEC232*	CC	Project-I	0	0	4	4	0	0	0	40	60	None
3*	EO/EG/ED	Elective(s)	-	-	-	-	-	-	-	-	-	-
			4*			6-28 5*						

1*: The Training undertaken by students during the Summer vacation after VI Semester will be evaluated as a VII Semester subject during end-semester examination.
2*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of the basic sciences, mathematics, engineering subjects and human values.
3* : The Course code, LTP allocation, Evaluation Scheme and Pre-requisites for Electives will depend on the electives chosen by the student as given in Tables 4, 5 and 6.
4*: The actual weekly load will depend upon the electives chosen by the student from Tables 4,5 and 6.
5*: A student may register for courses leading to a minimum of 6 credits and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

B.E. COMPUTER ENGINEERING-SEMESTER VIII

Course Code	Type	Subject	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
CEC241*	CC	Project-II	0	0	4	4	0	0	0	40	60	None
2*	EO/EG/ED	Elective(s)	-	-	-	4	-	-	-	-	-	-
			3*			**4-28 4***						

1*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of the basic sciences, mathematics, engineering subjects and human values.
2* : The Course code, LTP allocation, Evaluation Scheme and Pre-requisites for Electives will depend on the electives chosen by the student as given in Tables 4, 5 and 6.
3*: The weekly load will depend upon the electives chosen by the student from Tables 4,5 and 6.
4*: A student may register for courses leading to a minimum of 4 credits and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

TABLE 3: LIST OF FOUNDATION ELECTIVES										
Code	Name of Foundation Elective	L T P Allocation			Evaluation Scheme					Pre-Requisites
					Theory			Practical		
		L	T	P	CA	MS	ES	CA	MS	
FE001	Sports-I	0	0	4	-	-	-	60	40	None
FE002	Sports-II	0	0	4	-	-	-	60	40	FE001
FE003	NSS	0	0	4	-	-	-	60	40	None
FE004	NCC	0	0	4	-	-	-	60	40	None
FE005	Corporate Social Responsibility	2	0	0	25	25	50	-	-	None
FE006	Environmental Sciences	2	0	0	25	25	50	-	-	None
FE007	Environment development and Society	2	0	0	25	25	50	-	-	None
FE008	Spoken Skills in English	2	0	0	25	25	50	-	-	None
FE009	Financial Literacy	2	0	0	25	25	50	-	-	None
FE010	Introduction to Indian society	2	0	0	25	25	50	-	-	None
FE011	Soft Skills and Personality Development	1	0	2	-	-	-	60	40	None
FE012	Business Communication and Presentation Skills	1	0	2	-	-	-	60	40	None
FE013	Theatre	0	0	4	-	-	-	60	40	None
FE014	Dance	0	0	4	-	-	-	60	40	None
FE015	Yoga	0	0	4	-	-	-	60	40	None
FE016	Digital Film Making	0	0	4	-	-	-	60	40	None
FE017	Workshop (Electrical and Mechanical)	0	0	4	-	-	-	60	40	None
FE018	Music	0	0	4	-	-	-	60	40	None
FE019	Sociology of development	2	0	0	25	25	50	-	-	None
FE020	Universal Human Values 1: Self and Family	2	0	0	25	25	50	-	-	None
FE021	Universal Human Values 2: Self Society and Nature	2	0	0	25	25	50	-	-	FE020

TABLE 4: PART A: LIST OF DISCIPLINE SPECIFIC ELECTIVES WITH PRACTICAL							
LTP Allocation			Evaluation Scheme				
L	T	P	CA	MS	ES	Int	ES
3	0	2	15	15	40	15	15
Code	Name of Elective		Pre-Requisites				
CED01	Embedded Systems Design		CEC08,CEC10				
CED02	Big Data and Analytics		CEC02, CEC06				
CED03	Software Testing		CEC11				
CED04	Mobile Ad-hoc Networks		CEC08, CEC13				
CED05	Advanced Data Structures		CEC01, CEC02				
CED06	Natural Language Processing		CEC02, CEC05				

CED07	Information and Network Security	CEC13, CEC14
CED08	Mobile Computing	CEC05, CEC13, CEC14
CED09	Advanced Networks	CEC08, CEC13
CED10	Logic Programming	CEC02, CEC15
CED11	Internet and Web Technology	CEC08, CEC13
CED12	Emerging Programming Paradigms	CEC07
CED13	Wireless Technologies	CEC09, CEC13
CED14	Advanced algorithms	CEC01, CEC02, CEC05

TABLE 5 - PART B: LIST OF DISCIPLINE SPECIFIC ELECTIVES WITH TUTORIAL

LTP Allocation			**Evaluation Scheme**				
L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**ES**
3	**1**	**0**	**25**	**25**	**50**	**-**	**-**
Code	**Name of Elective**		**Pre-Requisites**				
CED15	Fault Tolerant Computing		CEC03, CEC08				
CED16	Artificial Intelligence		CEC02, CEC05				
CED17	Machine Learning		CEC02, CEC05				
CED18	Computer Vision		CEC02, CEC05,CEC12				
CED19	Semantic Web		CEC02, CEC05				
CED20	Advanced databases		CEC02, CEC06				
CED21	Internet of Things		CEC13, CEC10				
CED22	Software Quality		CEC11				
CED23	Requirements Engineering		CEC11				
CED24	Digital Watermarking and Steganography		CEC02, CEC05				
CED25	Service Oriented Architectures		CEC13, CEC14				
CED26	Real Time Systems		CEC08, CEC14				
CED27	Ethical Hacking		CEC13, CEC14				
CED28	Digital Forensic		CEC02, CEC05, CEC13				
CED29	CAD of VLSI		CEC02, CEC03, CEC05				
CED30	Middleware technologies		CEC13, CEC14				
CED31	Multimedia Applications		CEC12				
CED32	Human Computer Interfacing		CEC03, CEC12				
CED33	Emerging Applications of Computing		CEC02, CEC05				
CED34	Cryptography		CEC01				
CED35	Information Theory and coding		CEC01				
CED36	Rough Set Theory		CEC01				
CED37	Cloud Computing		CEC13, CEC14				
CED38	Soft Computing		CEC02, CEC05				
CED39	Distributed Computing		CEC08, CEC13, CEC14				
CED40	Design and Architectural Patterns		CEC07				
CED41	Rule based Computing		CEC02, CEC15				

TABLE 5 – GENERIC ELECTIVES (EG)
A Student may take any course offered by any department of the Institute under the categories of Core Course (CC) and Discipline-centric Elective (ED). However, such options shall be offered to a student as per prescribed guidelines of the Institute.

TABLE 6 : LIST OF OPEN ELECTIVES						
Evaluation Scheme						
CA	MS	ES			Int	Ext
25	25	50			-	-
Course Code	Name of Elective	L	T	P	Pre-Requisites	
EO001	Technical Communication	3	1	0	None	
EO002	Disaster Management	3	1	0	None	
EO003	Basics of Finance Management	3	1	0	None	
EO004	Basics of Human Resources Management	3	1	0	None	
EO005	Project Management	3	1	0	None	
EO006	Basics of Corporate Law	3	1	0	None	
EO007	Biological computing	3	1	0	None	
EO008	Basic of social science	3	1	0	None	
EO009	Entrepreneurship	3	1	0	None	
EO010	Social work	3	1	0	None	
EO011	IP and Patenting	3	1	0	None	
EO012	Supply Chain Management-Planning and logistics	3	1	0	None	
EO013	Organization Development	3	1	0	None	
EO014	Industrial Organisation and Managerial Economics	3	1	0	None	
EO015	Global Strategy and Technology	3	1	0	None	
EO016	Engineering System Analysis and Design	3	1	0	None	
EO017	Biology for Engineers	3	1	0	None	
EO018	Energy, Environment and Society	3	1	0	None	
EO019	Public Policy and Governance	3	1	0	None	
EO020	Numerical Methods	3	0	2	None	
EO021	Mathematical Statistics	3	1	0	None	
EO022	Abstract and Linear Algebra	3	1	0	None	
EO023	Optimization Techniques	3	1	0	None	
EO024	Introduction to Mathematical Software and Programming Languages	2	0	4	None	
EO025	Mathematical Finance	3	1	0	None	
EO026	Quantum Electronics	3	0	2	None	
EO027	Laser Systems and Applications	3	0	2	None	
EO028	Optoelectronics and Photonics	3	0	2	None	

EO029	Electromagnetic Theory and Waveguide	3	0	2	None
EO030	Polymer Science and Technology	3	0	2	None
EO031	Semiconductor Physics and Devices	3	0	2	None
EO032	Elements of Fibre Optics	3	0	2	None
EO033	Material Physics	3	0	2	N one
EO034	Advanced Electromagnetic Theory and Relativity	3	0	2	None
EO035	Fibre and Integrated Optics	3	0	2	None
EO036	Condensed Matter Physics	3	0	2	None
EO037	Microwave	3	0	2	None
EO038	Fundamentals of Instrumentation and experimental techniques in Physics	3	0	2	None
EO039	Lasers and Photonics	3	0	2	None

INSTRUMENTATION AND CONTROL ENGINEERING

Scheme-Semester-Wise Course Allocation

B.E. INSTRUMENTATION AND CONTROL ENGINEERING-SEMESTER I

Course Code	Type	Courses	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
FC001	FC	Mathematics-I	3	1	0	4	25	25	50	-	-	None
FC002	FC	Computer Programming	3	0	2	4	15	15	40	15	15	None
FC003	FC	Electrical and Electronics Engineering	3	0	2	4	15	15	40	15	15	None
FC004	FC	Physics	3	0	2	4	15	15	40	15	15	None
FC005	FC	English –I	2	0	0	2	25	25	50	-	-	None
FEXXX 1*	FE	Foundation Elective	-	-	-	2	-	-	-	-	-	-
			23/25 2*			**20**						

1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3.
2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3)

B.E. - INSTRUMENTATION AND CONTROL ENGINEERING- SEMESTER II

Course Code	Type	Subject	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
FC006	FC	Mathematics-I I	3	1	0	4	25	25	50	-	-	None

FC007	FC	English - II	2	0	0	2	25	25	50	-	-	None
ICC01	CC	Physics of Materials	3	0	2	4	15	15	40	15	15	None
ICC02	CC	Applied Mechanics	3	1	0	4	25	25	50	--	--	None
ICC03	CC	Signals and Systems	3	1	0	4	25	25	50	--	--	None
ICC04	CC	Power Apparatus	3	0	2	4	15	15	40	15	15	None
FEXXX 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			26/28 2*			**24**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3)												

B.E. INSTRUMENTATION AND CONTROL ENGINEERING- AUDIT COURSES DURING SUMMER COURSES AFTER SEMESTER II					**Evaluation Scheme**	
Course Code	**Type**	**Subject**	**LTP**	**Credits**	**Theory CA-MS**	**Practical CA-ES**
ACxxx	**Audit Course (AC)**	Audit Courses can be floated during summer break after 2nd semesters on: (III) Courses for improvement: These will not be shown on the degree. (IV) Courses on new themes: These will be shown on the degree.	-	NIL	The evaluation scheme and minimum grades for getting "Satisfactory" level, will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	

B.E. INSTRUMENTATION AND CONTROL ENGINEERING-SEMESTER III												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ICC05	CC	Electronic Instrumentation	3	0	2	4	15	15	40	15	15	None
ICC06	CC	Electronics	3	0	2	4	15	15	40	15	15	None
ICC07	CC	Engineering Graphics	2	0	4	4	--	--	--	40	60	None
ICC08	CC	Data Structures	3	1	0	4	25	25	50	-	-	None
ICC09	CC	Chemistry	3	1	0	4	25	25	50	-	-	None

FEXXX 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			26/28 2*			**22**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3).												

B.E. INSTRUMENTATION AND CONTROL ENGINEERING -SEMESTER IV												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ICC10	CC	Mathematics-III	3	1	0	4	25	25	50	--	--	None
ICC11	CC	Control System-I	3	0	2	4	15	15	40	15	15	None
ICC12	CC	Transducer & measurement	3	1	0	4	25	25	50	-	-	None
ICC13	CC	Industrial Electronics	3	0	2	4	15	15	40	15	15	None
ICC14	CC	Digital Circuits and Systems	3	1	0	4	25	25	50	-	-	None
FExxx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			24/26 2*			**22**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3).												

B.E. INSTRUMENTATION AND CONTROL ENGINEERING - AUDIT COURSES DURING SUMMER AFTER SEMESTER IV					**Evaluation Scheme**	
Course No.	**Type**	**Subject**	**LTP**	**Credits**	**Theory CA-MS**	**Practical CA-ES**
ACxxx	**Audit Course (AC)**	Audit Courses can be floated during summer break after 4th semester on: (i) Courses for improvement: These will not be shown on the degree. (ii) Courses on new themes : These will be shown on the degree.	-	NIL	The evaluation scheme and minimum grades for getting "Satisfactory' level, will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	

B.E. INSTRUMENTATION AND CONTROL ENGINEERING -SEMESTER V												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ICC15	CC	Microprocessor and Microcontroller	3	0	2	4	15	15	40	15	15	None
ICC16	CC	Process Dynamics and Control	3	0	2	4	15	15	40	15	15	None
ICC17	CC	Analog and Digital Communication	3	0	2	4	15	15	40	15	15	None
ICC18	CC	Control System-II	3	0	2	4	15	15	40	15	15	None
ICD 1*	EO/G/ D	Elective(s)	-	-	-	---	-	-	-	-	-	-
			------- 2*			**16-28 3***						
1*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The "_xx" part of the course code will depend upon the elective chosen by the student. 2*: The actual weekly load will depend upon the elective(s) chosen by the student. 3* A student may register for courses leading to a minimum number of 16 credits and maximum of 28 credits. Normally a student registers for courses leading to 22 credits.												

B.E. INSTRUMENTATION AND CONTROL ENGINEERING-SEMESTER VI												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ICC19	CC	Industrial Instrumentation	3	0	2	4	15	15	40	15	15	None
ICC20	CC	Robotics	3	0	2	4	15	15	40	15	15	None
ICC21	CC	Digital Signal Processing	3	0	2	4	15	15	40	15	15	None
1*	EO/ G/D	Elective(s)	-	-	-	--	-	-	-	-	-	-
			------ 2*			**12-28 3***						
1*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The "_xx" part of the course code will depend upon student's choice of elective. 2*: The actual weekly load will depend upon the elective choices of the student under the Electives ICDxx/E_xxx . 3* A student may register for courses leading to a minimum number of 12 credits and maximum of 28 credits. Normally a student registers for courses leading to 22 credits.												

B.E. INSTRUMENTATION AND CONTROL ENGINEERING - TRAINING AFTER SEMESTER VI												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ICC22 *1	**CC**	Training	--	-	-	2	-	-	-	40	60	None
*1: Students will undergo Training In the industry/Research organization/ Reputed Institutions during the Summer vacation after sixth Semester. This will be evaluated as a VII Semester subject during end-semester examination. Training gives exposure to students on the working of the industry, on research directions and practical applications of Instrumentation and Control Engineering and on work ethics.												

B.E. INSTRUMENTATION AND CONTROL ENGINEERING -SEMESTER VII												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ICC22 1*	CC	Training	-	-	-	2	-	-	-	40	60	None
ICC23 2*	CC	Project-I	0	0	4	4	0	0	0	40	60	None
3*	EO/G/D	Elective(s)	-	-	-	--	-	-	-	-	-	-
			---- 4*			**6-28 5***						
1*: The Training undertaken by students during the Summer vacation after sixth Semester will be evaluated as a VII Semester subject during end-semester examination. 2*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of the basic sciences, mathematics, engineering subjects and human values. 3*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The course code will depend upon student's choice of elective. 4*: The actual weekly load will depend upon the elective choices of the student. 5*: A student may register for courses leading to a minimum number of 06 credits and maximum of 28 credits. Normally a student registers for courses leading to 22 credits.											

B.E. INSTRUMENTATION AND CONTROL ENGINEERING -SEMESTER VIII												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ICC24 1*	CC	Project-II	0	0	4	4	0	0	0	40	60	None

2*	EO/G/D	Elective(s)	-	-	-	--	-	-	-	-	-	-
			------- 3*			**4-28 4***						

1*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of various basic sciences, mathematics, human values and engineering subjects.
2* : The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 2-4. The "_xx" part of the course code will depend upon student's choice of elective.
3*: The actual weekly load will depend upon the elective choices of the student under the Electives ICDxx/E_xxx .
4*: A student may register for courses leading to a minimum number of 04 credits and maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

TABLE - 3 LIST OF FOUNDATION ELECTIVES

Code	Name of Foundation Elective	LTP Allocation			Evaluation Scheme					Pre-Requisites
					Theory			Practical		
		L	T	P	CA	MS	ES	CA	ES	
FE001	Sports-I	0	0	4	-	-	-	60	40	None
FE002	Sports-II	0	0	4	-	-	-	60	40	FE001
FE003	NSS	0	0	4	-	-	-	60	40	None
FE004	NCC	0	0	4	-	-	-	60	40	None
FE005	Corporate Social Responsibility	2	0	0	25	25	50	-	-	None
FE006	Environmental Sciences	2	0	0	25	25	50	-	-	None
FE007	Environment development and Society	2	0	0	25	25	50	-	-	None
FE008	Spoken Skills in English	2	0	0	25	25	50	-	-	None
FE009	Financial Literacy	2	0	0	25	25	50	-	-	None
FE010	Introduction to Indian society	2	0	0	25	25	50	-	-	None
FE011	Soft Skills and Personality Development	1	0	2	-	-	-	60	40	None
FE012	Business Communication and Presentation Skills	1	0	2	-	-	-	60	40	None
FE013	Theatre	0	0	4	-	-	-	60	40	None
FE014	Dance	0	0	4	-	-	-	60	40	None
FE015	Yoga	0	0	4	-	-	-	60	40	None
FE016	Digital Film Making	0	0	4	-	-	-	60	40	None
FE017	Workshop (Electrical and Mechanical)	0	0	4	-	-	-	60	40	None
FE018	Music	0	0	4	-	-	-	60	40	None
FE019	Sociology of development	2	0	0	25	25	25	-	-	None

FE020	Universal Human Values 1: Self and Family	2	0	0	25	25	50	-	-	None
FE021	Universal Human Values 2: Self Society and Nature	2	0	0	25	25	50	-	-	FE020

TABLE 4: LIST OF DISCIPLINE CENTRIC ELECTIVES

LTP Allocation					**Evaluation Scheme**				
					Theory			**Practical**	
					CA	**MS**	**ES**	**CA**	**ES**
					10	**20**	**40**	**15**	**15**
Code	**Name of Elective**	**L**	**T**	**P**	**Pre-Requisites**				
ICD01	Advanced power apparatus	**3**	**0**	**2**	ICC04				
ICD02	Advanced power electronics	**3**	**0**	**2**	ICC47				
ICD03	AI techniques and application	**3**	**1**	**0**	NIL				
ICD04	Applied cryptography	**3**	**1**	**0**	ICC10				
ICD05	Bioinformatics	**3**	**1**	**0**	EO017				
ICD06	Biomedical signal processing	**3**	**1**	**0**	ICC03				
ICD07	Biometrics	**3**	**0**	**2**	ICC03				
ICD08	Computer network	**3**	**1**	**0**	ICC17				
ICD09	Condition monitoring of power apparatus	**3**	**0**	**2**	ICC04				
ICD10	Design of hydropower system	**3**	**1**	**0**	NIL				
ICD11	Biomedical Instrumentation	**3**	**0**	**2**	ICC05				
ICD12	Discrete time systems	**3**	**0**	**2**	ICC11				
ICD13	Drive system in electric traction	**3**	**0**	**2**	ICC13				
ICD14	DSP controlled electric drives	**3**	**0**	**2**	ICC04, ICC21				
ICD15	Wind and solar based electrical systems	**3**	**1**	**0**	ICC04				
ICD16	Electric drives for hybrid vehicles	**3**	**1**	**0**	NIL				
ICD17	Energy auditing	**3**	**1**	**0**	ICC04				
ICD18	Evolutionary computations	**3**	**1**	**0**	NIL				
ICD19	Fault detection and diagnosis	**3**	**1**	**0**	NIL				
ICD20	High voltage engineering	**3**	**0**	**2**	NIL				
ICD21	Instrumentation in electric drives	**3**	**0**	**2**	ICC05				
ICD22	Intelligent Control	**3**	**1**	**0**	ICC11				
ICD23	Large Scale Systems	**3**	**1**	**0**	NIL				
ICD24	Logic and distributed control system	**3**	**1**	**0**	ICC11				
ICD25	Mechatronics	**3**	**0**	**2**	ICC06				
ICD26	MEMS	**3**	**1**	**0**	NIL				
ICD27	Micro system design	**3**	**1**	**0**	NIL				
ICD28	Modeling and analysis of electrical m/c	**3**	**0**	**2**	ICC04				
ICD29	Non linear Control	**3**	**0**	**2**	ICC11				
ICD30	Optimization techniques	**3**	**1**	**0**	NIL				
ICD31	Parameter estimation and system identification	**3**	**1**	**0**	ICC18				
ICD32	Physiological control systems	**3**	**0**	**2**	ICC11				
ICD33	Power apparatus design	**3**	**0**	**2**	ICC04				
ICD34	Power converters	**3**	**0**	**2**	ICC13				

ICD35	Power quality and harmonics	**3**	**0**	**2**	NIL
ICD36	Principles of cryptography	**3**	**1**	**0**	NIL
ICD37	Advanced Process Control	**3**	**0**	**2**	ICC16
ICD38	Random processes in control and estimation	**3**	**1**	**0**	ICC11
ICD39	Reactive power control and FACTS devices	**3**	**0**	**2**	ICC04
ICD40	Electric Drives	**3**	**0**	**2**	ICC13
ICD41	Robust control	**3**	**0**	**2**	ICC18
ICD42	Selected topics in control	**3**	**1**	**0**	ICC18
ICD43	Sensor networks	**3**	**1**	**0**	NIL
ICD44	Special machines	**3**	**0**	**2**	ICC04
ICD45	Utilization of electrical energy	**3**	**1**	**0**	NIL
ICD46	Virtual instrumentation	**3**	**0**	**2**	ICC05
ICD47	Power Electronics	**3**	**0**	**2**	ICC06

TABLE 5 : GENERIC ELECTIVES (EG)
A student may take any course offered by any other Department of the institute under the categories of Core Course (CC) and Discipline centric Elective (ED). However such options shall be offered to a student as per prescribed guidelines of Institute.

TABLE 6 : OPEN ELECTIVES								
LTP Allocation			**Evaluation Scheme**					
			Theory			**Practical**		
L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**ES**	
3	**1**	**0**	**25**	**25**	**50**	**-**	**-**	
Code	**Name of Elective**		**Pre-Requisites**					
EO001	Technical Communication		None					
EO002	Disaster Management		None					
EO003	Basics of Finance Management		None					
EO004	Basics of Human Resources Management		None					
EO005	Project Management		None					
EO006	Basics of Corporate Law		None					
EO007	Biological computing		None					
EO008	Basic of social science		None					
EO009	Entrepreneurship		None					
EO010	Social work		None					
EO011	IP and Patenting		None					
EO012	Supply Chain Management-Planning and logistics		None					
EO013	Organization Development		None					
EO014	Industrial Organization and Managerial Economics		None					
EO015	Global Strategy and Technology		None					
EO016	Engineering System Analysis and Design		None					
EO017	Biology for Engineers		None					
EO018	Energy, Environment and Society		None					
EO019	Public Policy and Governance		None					

OPEN ELECTIVES					
Course Code	**Course name**	**L**	**T**	**P**	**Pre-requisites**
EO020	Numerical Methods	3	0	2	None
EO021	Mathematical Statistics	3	1	0	None
EO022	Abstract and Linear Algebra	3	1	0	None
EO023	Optimization Techniques	3	1	0	None
EO024	Introduction to Mathematical Software and Programming Languages	2	0	4	None
EO025	Mathematical Finance	3	1	0	None
EO026	Quantum Electronics	3	0	2	None
EO027	Laser Systems and Applications	3	0	2	None
EO028	Optoelectronics and Photonics	3	0	2	None
EO029	Electromagnetic Theory and Waveguide	3	0	2	None
EO030	Polymer Science and Technology	3	0	2	None
EO031	Semiconductor Physics and Devices	3	0	2	None
EO032	Elements of Fibre Optics	3	0	2	None
EO033	Material Physics	3	0	2	N one
EO034	Advanced Electromagnetic Theory and Relativity	3	0	2	None
EO035	Fibre and Integrated Optics	3	0	2	None
EO036	Condensed Matter Physics	3	0	2	None
EO037	Microwave	3	0	2	None
EO038	Fundamentals of Instrumentation and experimental techniques in Physics	3	0	2	None
EO039	Lasers and Photonics	3	0	2	None

MANUFACTURING PROCESSES AND AUTOMATION ENGINEERING

Scheme-Semester-Wise Course Allocation

SEMESTER I												
Course Code	**Type**	**Courses**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**MS**	
FC001	FC	Mathematics-I	3	1	0	4	25	25	50	-	-	None
FC002	FC	Computer Programming	3	0	2	4	15	15	40	15	15	None
FC003	FC	Electrical and Electronics Engineering	3	0	2	4	15	15	40	15	15	None
FC004	FC	Physics	3	0	2	4	15	15	40	15	15	None
FC005	FC	English –I	2	0	0	2	25	25	50	-	-	None
FExxx 1*	FE	Foundation Elective	-	-	-	2	-	-	-	-	-	-
			23/25			**20**						

			2*		

1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3.
2*: The actual weekly load depends upon the elective chosen by student under FE (Refer Table 3).

SEMESTER II													
Course Code	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
FC006	FC	Mathematics-II	3	1	0	4	25	25	50	-	-	None
FC007	FC	English - II	2	0	0	2	25	25	50	-	-	None
MAC01	CC	Chemistry	3	0	2	4	15	15	40	15	15	None
MAC02	CC	Engineering Mechanics	3	0	2	4	15	15	40	15	15	None
MAC03	CC	Workshop Technology	2	0	4	4	15	15	40	15	15	None
MAC04	CC	Engineering Graphics	2	0	4	4				30	70	None
FExxx 1*	FE	Foundation Elective	-	-	-	2	-	-	-	-	-	-
			30/32 2*			**24**						

1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3.
2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3)

B.E. MANUFACTURING PROCESSES AND AUTOMATION ENGINEERING- AUDIT COURSES DURING SUMMER COURSES AFTER SEMESTER-II					**Evaluation Scheme**	
Course Code	**Type**	**Course**	**LTP**	**Credits**	**Theory CA-MS-ES**	**Practical CA-ES**
ACxxx	Audit EO	Audit Courses(AC) can be floated during summer break after 2nd semesters on: (V) Courses for improvement: These will not be shown on the degree. (VI) Courses on new themes: These will be shown on the degree.	-	NIL	The evaluation scheme and minimum grades for getting "Satisfactory" level, will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	

SEMESTER III													
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MAC05	CC	Machine Drawing	2	0	4	4	15	15	40	15	15	None
MAC06	CC	Manufacturing Processes I	3	0	2	4	15	15	40	15	15	None
MAC07	CC	Mechanical Sciences	3	0	2	4	15	15	40	15	15	None
MAC08	CC	Control System	3	0	2	4	15	15	40	15	15	None
MAC09	CC	Mathematics III	3	1	0	4	15	15	40	15	15	None
FExxx 1*	FE	Foundation Elective	-	-	-	2	-	-	-	-	-	-
			29/31 2*			**22**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3).												

SEMESTER IV													
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MAC10	CC	Kinematics & Dynamics of Machinery	3	0	2	4	15	15	40	15	15	None
MAC11	CC	Mechanics of solids	3	0	2	4	15	15	40	15	15	None
MAC12	CC	Transducers and Measurements	3	0	2	4	15	15	40	15	15	None
MAC13	CC	Manufacturing Processes II	3	0	2	4	15	15	40	15	15	None
MAC14	CC	Science of Materials	3	1	0	4	25	25	50	-	-	None
FExxx 1*	FE	Foundation Elective	-	-	-	2	-	-	-	-	-	-
			28/30 2*			**22**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE(Refer Table-3).												

B.E. COMPUTER ENGINEERING- AUDIT COURSES DURING SUMMER AFTER IV SEMESTER					Evaluation Scheme	
Course No.	**Type**	**Course**	**LTP**	**Credits**	**Theory CA-MS-ES**	**Practical Internal-External**
ACxxx	Audit EO	Audit Courses can be floated during summer break after 4th semester on: (i) Courses for improvement: These will not be shown on the degree. (ii) Courses on new themes : These will be shown on the degree.	-	NIL	The evaluation scheme and minimum grades for getting "Satisfactory' level, will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	

AC: Audit Course

SEMESTER V													
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MAC15	CC	Machine Tools, CNC and Automation	3	0	2	4	15	15	40	15	15	None
MAC16	CC	Metrology and Quality Control	3	0	2	4	15	15	40	15	15	None
MAC17	CC	Tool Design	3	0	2	4	15	15	40	15	15	None
MAC18	CC	Operations Research	3	0	2	4	15	15	40	15	15	None
MADxx 1*	EG/ ED/ EO	Elective(s)	-	-	-	4	-	-	-	-	-	-
			24/26			**20-35 3***						

1*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The course code will depend upon student's choice of elective(s).
2*: The actual weekly load will depend upon the elective(s) chosen by the student.
3*: A student may register for courses leading to a minimum of 16 credits and a maximum of 28 credits. Normally, a student registers for courses leading to 22 credits.

SEMESTER VI													
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MAC19	CC	Geometric Modeling	3	0	2	4	15	15	40	15	15	None
MAC20	CC	Applied Plasticity	3	0	2	4	15	15	40	15	15	None
MAC21	CC	Mechanical Design	3	0	2	4	15	15	40	15	15	None
MADxx 1*	EG/ ED/ EO	Elective(s)	-	-	-	-	-	-	-	-	-	-
			20/35 2*			**12-28 3***						
1*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The course code will depend upon the elective(s) chosen by the student. 2*: The actual weekly load will depend upon the elective(s) chosen by the student. 3*: A student may register for courses leading to a minimum of 12 credits and a maximum of 28 credits. Normally, a student registers for courses leading to 22 credits													

TRAINING AFTER SEMESTER VI												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MAC22 1*	**CC**	Training	--	-	-	2	-	-	-	40	60	None
1*: Students will undergo Training in the Industry/research organization/ reputed institution during the Summer vacation after sixth Semester. This will be evaluated as a VII Semester subject during end-semester examination. Training gives exposure to students on the working of the industry on research directions and practical applications of Electronics and Communication Engineering and on work ethics.												

B.E. MANUFACTURING PROCESSES AND AUTOMATION ENGINEERING SEMESTER VII												
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MAC22 1*	CC	Training	-	-	-	2	-	-	-	40	60	None
MAC23 2*	CC	Project-I	0	0	-	4	-	-	-	40	60	None

MAC24	CC	Product Design	2	0	4	4	15	15	40	15	15	None
MAC25	CC	Modern Methods of Manufacturing	3	0	2	4	15	15	40	15	15	None
MADxx 3*	ED/ EG/ EO	Elective(s)	-	-	-	4	-	-	-	-	-	-
			20/35 4*			**14-28 5***						

1*: Training undertaken by students during the Summer vacation after sixth Semester will be evaluated as a VII Semester subject during end-semester examination.
2*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of the basic sciences, mathematics, engineering subjects and human values.
3*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The course code will depend upon the elective(s) chosen by the student.
4*: The actual weekly load will depend upon the elective(s) chosen by the student.
5*: A student may register for courses leading to a minimum of 14 credits and a maximum of 28 credits. Normally, a student registers for courses leading to 22 credits.

SEMESTER VIII

Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MAC261*	CC	Project-II	0	0	4	4	0	0	0	40	60	None
MADxx2*	EG/ ED/ EO	Elective(s)	-	-	-	4	-	-	-	-	-	-
			20/35 3*			**4-28 2***						

1*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of various basic sciences, mathematics, human values and engineering subjects.
2*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 3-6.
3*: The actual weekly load will depend upon the elective(s) chosen by the student.
4*: A student may register for courses leading to a minimum of 4 credits and a maximum of 28 credits. Normally, a student registers for courses leading to 22 credits.

TABLE-3: LIST OF FOUNDATION ELECTIVES

Code	**Name of Foundation Elective**	**L T P Allocation**			**Evaluation Scheme**					**Pre-Requisites**
					Theory			**Practical**		
		L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**MS**	

FE001	Sports-I	0	0	4	-	-	-	60	40	None
FE002	Sports-II	0	0	4	-	-	-	60	40	FE001
FE003	NSS	0	0	4	-	-	-	60	40	None
FE004	NCC	0	0	4	-	-	-	60	40	None
FE005	Corporate Social Responsibility	2	0	0	25	25	50	-	-	None
FE006	Environmental Sciences	2	0	0	25	25	50	-	-	None
FE007	Environment development and Society	2	0	0	25	25	50	-	-	None
FE008	Spoken Skills in English	2	0	0	25	25	50	-	-	None
FE009	Financial Literacy	2	0	0	25	25	50	-	-	None
FE010	Introduction to Indian society	2	0	0	25	25	50	-	-	None
FE011	Soft Skills and Personality Development	1	0	2	-	-	-	60	40	None
FE012	Business Communication and Presentation Skills	1	0	2	-	-	-	60	40	None
FE013	Theatre	0	0	4	-	-	-	60	40	None
FE014	Dance	0	0	4	-	-	-	60	40	None
FE015	Yoga	0	0	4	-	-	-	60	40	None
FE016	Digital Film Making	0	0	4	-	-	-	60	40	None
FE017	Workshop (Electrical and Mechanical)	0	0	4	-	-	-	60	40	None
Code	**Name of Foundation Elective**	**L T P Allocation**			**Evaluation Scheme**					**Pre-Requisites**
FE018	Music	0	0	4	-	-	-	60	40	None
FE019	Sociology of development	2	0	0	25	25	50	-	-	None
FE020	Universal Human Values 1: Self and Family	2	0	0	25	25	50	-	-	None
FE021	Universal Human Values 2: Self Society and Nature	2	0	0	25	25	50	-	-	FE020

TABLE 4 - PART A: LIST OF DISCIPLINE CENTRIC ELECTIVES (WITH TUTORIAL)

LTP Allocation			**Evaluation Scheme**				
			Theory			**Practical**	
L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**MS**
3	**1**	**0**	**25**	**25**	**50**	**-**	**-**

Code	**Name of Elective**	**Pre-Requisites**
MAD01	Value Engineering	None
MAD02	Reliability	FC001, FC006, MAC09
MAD03	Financial Management	None
MAD04	Total Quality Management	None
MAD05	Industrial Control Systems	None
MAD06	Embedded Systems	None

MAD07	Ergonomics	None
MAD08	Management of Manufacturing System	MAC18
MAD09	Flexible Manufacturing Systems	MAC06, MAC13, MAC25
MAD10	Design of Experiments	None
MAD11	Micro Electro Mechanical Systems	MAC08, MAC25
MAD12	Composite Materials	MAC14
MAD13	Micro/Nano Machining	MAC06, MAC13, MAC14
MAD14	Material Management	FC002

TABLE 4 –PART B: LIST OF DISCIPLINE CENTRIC ELECTIVES (WITH PRACTICAL)

LTP Allocation			Evaluation Scheme				
			Theory			Practical	
L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**ES**
3	**0**	**2**	**15**	**15**	**40**	**15**	**15**
Code	**Name of Elective**		**Pre-Requisites**				
MAD21	Finite Element Methods		MAC07, MAC11				
MAD22	Fracture Mechanics		MAC02, MAC11				
MAD23	Mechanical Vibrations		FC006, MAC10				
MAD24	Rapid Prototyping and Tooling		MAC19				
MAD25	Fluid Systems		MAC07				
MAD26	Refrigeration and Air Conditioning		MACO7				
MAD27	Mechatronics		MAC08, MAC12				
MAD28	Robotics		FC002, MAC02, MAC08, MAC10, MAC12				
MAD29	Artificial Intelligence		FC001, FC002, MAC09				
MAD30	Automation in Engineering		MAC12, MAC13, MAC15				
MAD31	Management Information System Design		MAC18				

TABLE-5: GENERIC ELECTIVES (EG)

A student may take any course offered by any department of the institute under the categories of core course (cc) and discipline centric elective (ed). However, such options shall be offered to a student as per prescribed guidelines of the institute.

TABLE-6: LIST OF OPEN ELECTIVES

LTP Allocation			Evaluation Scheme					
L	**T**	**P**	**CA**	**MS**	**ES**	**Int.**	**Ext.**	
3	**1**	**0**	**25**	**25**	**50**	**-**	**-**	
Code	**Name of Elective**		**L**	**T**	**P**	**Pre-requisites**		
EO001	Technical Communication		3	1	0	None		
EO002	Disaster Management		3	1	0	None		
EO003	Basics of Finance Management		3	1	0	None		
EO004	Basics of Human Resources Management		3	1	0	None		

EO005	Project Management	3	1	0	None
EO006	Basics of Corporate Law	3	1	0	None
EO007	Biological computing	3	1	0	None
EO008	Basic of social science	3	1	0	None
EO009	Entrepreneurship	3	1	0	None
EO010	Social work	3	1	0	None
EO011	IP and Patenting	3	1	0	None
EO012	Supply Chain Management-Planning and logistics	3	1	0	None
EO013	Organization Development	3	1	0	None
EO014	Industrial Organization and Managerial Economics	3	1	0	None
EO015	Global Strategy and Technology	3	1	0	None
EO016	Engineering System Analysis and Design	3	1	0	None
EO017	Biology for Engineers	3	1	0	None
EO018	Energy, Environment and Society	3	1	0	None
EO019	Public Policy and Governance	3	1	0	None

OPEN ELECTIVES					
Course Code	**Course name**	**L**	**T**	**P**	**Pre-requisites**
EO020	Numerical Methods	3	0	2	None
EO021	Mathematical Statistics	3	1	0	None
EO022	Abstract and Linear Algebra	3	1	0	None
EO023	Optimization Techniques	3	1	0	None
EO024	Introduction to Mathematical Software and Programming Languages	2	0	4	None
EO025	Mathematical Finance	3	1	0	None
EO026	Quantum Electronics	3	0	2	None
EO027	Laser Systems and Applications	3	0	2	None
EO028	Optoelectronics and Photonics	3	0	2	None
EO029	Electromagnetic Theory and Waveguide	3	0	2	None
EO030	Polymer Science and Technology	3	0	2	None
EO031	Semiconductor Physics and Devices	3	0	2	None
EO032	Elements of Fibre Optics	3	0	2	None
EO033	Material Physics	3	0	2	N one
EO034	Advanced Electromagnetic Theory and Relativity	3	0	2	None
EO035	Fibre and Integrated Optics	3	0	2	None
EO036	Condensed Matter Physics	3	0	2	None
EO037	Microwave	3	0	2	None
EO038	Fundamentals of Instrumentation and experimental techniques in Physics	3	0	2	None
EO039	Lasers and Photonics	3	0	2	None

INFORMATION TECHNOLOGY

Scheme-Semester-Wise Course Allocation

SEMESTER I												
Course Code	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
FC001	FC	Mathematics-I	3	1	0	4	25	25	50	-	-	None
FC002	FC	Computer Programming	3	0	2	4	15	15	40	15	15	None
FC003	FC	Electrical & Electronics Engineering	3	0	2	4	15	15	40	15	15	None
FC004	FC	Physics	3	0	2	4	15	15	40	15	15	None
FC005	FC	English-I	2	0	0	2	25	25	50	-	-	None
FExxx **1***	FE	Foundation Elective	-	-	-	2	-	-	-	-	-	-
			23/25 2*			**20**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 2. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 2)												

SEMESTER II												
Course Code	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
FC006	FC	Mathematics-II	3	1	0	4	25	25	50	-	-	None
FC007	FC	English-II	2	0	0	2	25	25	50	-	-	None
ITC01	CC	Chemistry	3	0	2	4	15	15	40	15	15	None
ITC02	CC	Object Oriented Techniques	3	0	2	4	15	15	40	15	15	None
ITC03	CC	Analog and Digital Communication	3	1	0	4	25	25	50	-	-	None
ITC04	CC	Discrete Structure	3	1	0	4	25	25	50	-	-	None
FExxx **1***	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			26/28 2*			**24**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 2. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 2)												

B.E. INFORMATION TECHNOLOGY - AUDIT COURSES AFTER SEMESTER-II					Evaluation Scheme	
Course Code	**Type**	**Course**	**LTP**	**Credits**	**Theory CA**	**Practical CA-ES**
AC001	**Audit**	Audit Courses can be floated during summer break after 2nd semester on: (VII) Courses for improvement: These will not be shown on the degree. (VIII) Courses on new themes: These will be shown on the degree.	-	NIL	The evaluation scheme and minimum grades for getting "Satisfactory" level will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	

SEMESTER III												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ITC05	CC	Mathematics-III	3	1	0	4	25	25	50			None
ITC06	CC	Data Structure and Algorithm	3	0	2	4	15	15	40	15	15	None
ITC07	CC	Digital Circuits and Systems	3	0	2	4	15	15	40	15	15	None
ITC08	CC	Database Management System	3	0	2	4	15	15	40	15	15	None
ITC09	CC	Computer Graphics	3	0	2	4	15	15	40	15	15	None
FExxx **1***	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			26/28 2*			**22**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 2. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 2).												

SEMESTER IV												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ITC10	CC	Probability and Stochastic Processes	3	1	0	4	15	15	40	15	15	None

ITC11	CC	Operating Systems	3	0	2	4	15	15	40	15	15	None
ITC12	CC	Computer System Architecture	3	1	0	4	25	25	50			None
ITC13	CC	Computer Networks	3	0	2	4	15	15	40	15	15	None
ITC14	CC	Software Engineering	3	0	2	4	15	15	40	15	15	None
FExxx **1***	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			25/27 2*			**22**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 2. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 2).												

AUDIT COURSES AFTER IV SEMESTER					**Evaluation Scheme**	
Course Code	**Type**	**Course**	**LTP**	**Credits**	**Theory CA**	**Practical CA-ES**
AC002	**Audit**	Audit Courses can be floated during summer break after 4th semester on: (IX) Courses for improvement: These will not be shown on the degree. (X) Courses on new themes: These will be shown on the degree.	-	NIL	The evaluation scheme and minimum grades for getting "Satisfactory" level will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	

B.E. INFORMATION TECHNOLOGY -SEMESTER V												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ITC15	CC	Multimedia & Applications	3	0	2	4	15	15	40	15	15	None
ITC16	CC	Theory of Computation	3	1	0	4	25	25	50	-	-	None
ITC17	CC	Design and Analysis of Algorithm	3	0	2	4	15	15	40	15	15	None
ITC18	CC	Linux/Unix Lab	0	0	4	2	-	-	-	50	50	None
1*	EO/EG /ED	Elective(s)	-	-	-	4	-	-	-	-	-	-

			2*	**16/28 3***	

1*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 3-5. The course code will depend upon student's choice of elective(s).
2*: The actual weekly load will depend upon the elective chosen by the student.
3*: A student may register for elective(s) courses leading to a minimum of 16 credits and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

B.E. INFORMATION TECHNOLOGY -SEMESTER VI

Course No.	Type	Subject	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
ITC19	CC	Internet and Web Engineering	3	1	0	4	25	25	50	-	-	None
ITC20	CC	Compiler and Translator Design	3	1	0	4	25	25	50	-	-	None
ITC21	CC	Modeling and Simulation	3	0	2	4	15	15	40	15	15	None
1*	EO/EG/ ED	Elective(s)	-	-	-	4	-	-	-	-	-	-
			2*			**16/28 3***						

1*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 3-5. The course code will depend upon student's choice of elective(s).
2*: The actual weekly load will depend upon the elective chosen by the student.
3*: A student may register for elective(s) courses leading to a minimum of 16 credits and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

B.E. INFORMATION TECHNOLOGY - TRAINING AFTER VI SEMESTER

Course No.	Type	Subject	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
ITC22 **1***	**CC**	Training	--	-	-	2	-	-	-	40	60	None

1*: Students will undergo Training in the industry, research organization and reputed institutions after VI semester. This will be evaluated as a VII Semester subject during end-semester examination.
Training gives exposure to students on the working of the industry, on research direction and practical applications of Information Technology and on work ethics.

B.E. INFORMATION TECHNOLOGY -SEMESTER VII													
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ITC22 **1***	CC	Training(6-8 weeks)	-	-	-	2	-	-	-	40	60	None
ITC23 **2***	CC	Project-I	-	-	-	4	0	0	0	40	60	None
-	EO/EG/ ED	Elective(s)	-	-	-	4	-	-	-	-	-	-
			3*			**6/28 4***						

1*: The Training undertaken by students during the Summer vacation after VI Semester will be evaluated as a VII Semester subject during end-semester examination.
2*: Project work is based on the student`s ability to understand, design and implement the fundamental concepts of the basic sciences, mathematics, engineering subjects and human values.
3*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 3-5.
4*: The actual weekly load will depend upon the elective chosen by the student.

B.E. INFORMATION TECHNOLOGY -SEMESTER VIII												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
ITC24 **1***	CC	Project-II	-	-	-	4	0	0	0	40	60	None
-	EO/EG/ ED	Elective(s)	-	-	-	4	-	-	-	-	-	-
			2*			**4/28 3***						

1*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of various basic sciences, mathematics, human values and engineering subjects.
2*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 3-5.
3*: The actual weekly load will depend upon the elective chosen by the student.

TABLE-2 LIST OF FOUNDATION ELECTIVES										
Code	**Name of Foundation Elective**	**LTP Alloc.**			**Evaluation Scheme**					**Pre-Requisites**
		L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**ES**	
FE001	Sports-I	0	0	4	-	-	-	60	40	None
FE002	Sports-II	0	0	4	-	-	-	60	40	FE001
FE003	NSS	0	0	4	-	-	-	60	40	None
FE004	NCC	0	0	4	-	-	-	60	40	None
FE005	Corporate Social	2	0	0	25	25	50	-	-	None

	Responsibility									
FE006	Environmental Sciences	2	0	0	25	25	50	-	-	None
FE007	Environment development and Society	2	0	0	25	25	50	-	-	None
FE008	Spoken Skills in English	2	0	0	25	25	50	-	-	None
FE009	Financial Literacy	2	0	0	25	25	50	-	-	None
FE010	Introduction to Indian society	2	0	0	25	25	50	-	-	None
FE011	Soft Skills and Personality Development	1	0	2	-	-	-	60	40	None
FE012	Business Communication and Presentation Skills	1	0	2	-	-	-	60	40	None
FE013	Theatre	0	0	4	-	-	-	60	40	None
FE014	Dance	0	0	4	-	-	-	60	40	None
FE015	Yoga	0	0	4	-	-	-	60	40	None
FE016	Digital Film Making	0	0	4	-	-	-	60	40	None
FE017	Workshop (Electrical and Mechanical)	0	0	4	-	-	-	60	40	None
FE018	Music	0	0	4	-	-	-	60	40	None
FE019	Sociology of development	2	0	0	-	-	-	60	40	None
FE020	Universal Human Values 1: Self and Family	2	0	0	25	25	50	-	-	None
FE021	Universal Human Values 2: Self, Society and Nature	2	0	0	25	25	50	-	-	FE020

TABLE 3A: LIST OF DISCIPLINE CENTRIC ELECTIVES WITH PRACTICAL

LTP Allocation			**Evaluation Scheme**				
L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**ES**
3	**0**	**2**	**15**	**15**	**40**	**15**	**15**
Code	**Name of Elective**		**Pre-Requisites**				
ITD01	Distributed System and Computing		ITC11				
ITD02	Microprocessors and Applications		ITC12				
ITD03	Information Security		ITC13				
ITD04	Mobile Communication		ITC13				
ITD05	Artificial Intelligence		ITC04, ITC17				
ITD06	Software Testing		ITC14				
ITD07	Pattern Recognition		ITC04, ITC17				
ITD08	Data ware house and data mining		ITC08				
ITD09	Advanced Database Management		ITC08				
ITD10	Advanced Computer Networks		ITC13				

ITD11	Recent Trends in Information Technology	None
ITD12	Image Processing	ITC09, ITC15
ITD13	Adhoc Network	ITC13
ITD14	Software Quality and Assurance	ITC014
ITD15	Software Project Management	ITC014

TABLE 3B: LIST OF DISCIPLINE CENTRIC ELECTIVES WITH TUTORIAL

LTP Allocation			Evaluation Scheme				
L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**ES**
3	**1**	**0**	**25**	**25**	**50**	**-**	**-**
Code	**Name of Elective**		**Pre-Requisites**				
ITD16	Computer Vision		ITC09, ITC15				
ITD17	Information Theory and coding		ITC04, ITC05				
ITD18	Soft Computing		ITC17				
ITD19	Wireless Communication		ITC13				
ITD20	Game Theory		ITC05				
ITD21	Operational Research		FC006,ITC05				
ITD22	E-commerce and E-governance		NONE				
ITD23	Neural Networks		ITC04, ITC17				
ITD24	Genetic Algorithms		ITC17				

TABLE 4: LIST OF GENERIC ELECTIVES (EG)

A student may take any course offered by any department of the institute under the categories of core course (CC) and discipline centric elective(ED). However, such options shall be offered to a student as per prescribed guidelines of the institute.

TABLE-5 LIST OF OPEN ELECTIVES

Code	Name of Open Elective	LTP Allocation			Evaluation Scheme					Pre-Requisites
					Theory			Practical		
		L	T	P	CA	MS	ES	CA	MS	
EO001	Technical Communication	3	1	0	25	25	50	-	-	None
EO002	Disaster Management	3	1	0	25	25	50	-	-	None
EO003	Basics of Financial Management	3	1	0	25	25	50	-	-	None
EO004	Basics of Human Resource Management	3	1	0	25	25	50	-	-	None
EO005	Project Management	3	1	0	25	25	50	-	-	None
EO006	Basics of Corporate Law	3	1	0	25	25	50	-	-	None
EO007	Biological computing	3	1	0	25	25	50	-	-	None
EO008	Basics of social sciences	3	1	0	25	25	50	-	-	None
EO009	Entrepreneurship	3	1	0	25	25	50	-	-	None
EO010	Social work	3	1	0	25	25	50	-	-	None
EO011	Intellectual Property and Patenting	3	1	0	25	25	50	-	-	None

EO012	Supply Chain Management-Planning and logistics	3	1	0	25	25	50	-	-	None
EO013	Organization Development	3	1	0	25	25	50	-	-	None
EO014	Industrial Organisation and Managerial Economics	3	1	0	25	25	50	-	-	None
EO015	Global Strategies and Technology	3	1	0	25	25	50	-	-	None
EO016	Engineering System Analysis and Design	3	1	0	25	25	50	-	-	None
EO017	Biology for Engineers	3	1	0	25	25	50	-	-	None
EO018	Energy, Environment and Society	3	1	0	25	25	50	-	-	None
EO019	Public Policy and Governance	3	1	0	25	25	50	-	-	None
EO020	Numerical Methods	3	0	2	15	15	40	15	15	None
EO021	Mathematical Statistics	3	1	0	25	25	50	-	-	None
EO022	Abstract and Linear Algebra	3	1	0	25	25	50	-	-	None
EO023	Optimization Techniques	3	1	0	25	25	50	-	-	None
EO024	Introduction to Mathematical Software and Programming Languages	2	0	4	15	15	40	15	15	None
EO025	Mathematical Finance	3	0	2	15	15	40	15	15	None
EO026	Quantum Electronics	3	0	2	15	15	40	15	15	None
EO027	Laser Systems and Applications	3	0	2	15	15	40	15	15	None
EO028	Optoelectronics and Photonics	3	0	2	15	15	40	15	15	None
EO029	Electromagnetic Theory and Waveguides	3	0	2	15	15	40	15	15	None
EO030	Polymer Science and Technology	3	0	2	15	15	40	15	15	None
EO031	Semiconductor Physics and Devices	3	0	2	15	15	40	15	15	None
EO032	Elements of Fibre Optics	3	0	2	15	15	40	15	15	None
EO033	Material Physics	3	0	2	15	15	40	15	15	None
EO034	Advanced Electromagnetic Theory and Relativity	3	0	2	15	15	40	15	15	None
EO035	Fibre and Integrated Optics	3	0	2	15	15	40	15	15	None
EO036	Condensed Matter Physics	3	0	2	15	15	40	15	15	None
EO037	Microwave	3	0	2	15	15	40	15	15	None
EO038	Fundamentals of Instrumentation and experimental techniques in Physics	3	0	2	15	15	40	15	15	None
EO039	Lasers and Photonics	3	0	2	15	15	40	15	15	None

BIOTECHNOLOGY

Scheme-Semester-Wise Course Allocation

B.E. BIOTECHNOLOGY - SEMESTER - I												
Course Code	**Type**	**Courses**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
FC001	FC	Mathematics-I	3	1	0	4	25	25	50	-	-	None
FC002	FC	Computer Programming	3	0	2	4	15	15	40	15	15	None
FC003	FC	Electrical and Electronics Engineering	3	0	2	4	15	15	40	15	15	None
FC004	FC	Physics	3	0	2	4	15	15	40	15	15	None
FC005	FC	English – I	2	0	0	2	25	25	50	-	-	None
FExxx 1*	FE	Foundation Elective	-	-	-	2	-	-	-	-	-	-
			23/25 2*			**20**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3)												

B.E. BIOTECHNOLOGY - SEMESTER II												
Course Code	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
FC006	FC	Mathematics-II	3	1	0	4	25	25	50	-	-	None
FC007	FC	English – II	2	0	0	2	25	25	50	-	-	None
BTC01	CC	Physics of Materials	3	0	2	4	15	15	40	15	15	None
BTC02	CC	Advance Chemistry	3	0	2	4	15	15	40	15	15	None
BTC03	CC	Biostatistics	3	1	0	4	25	25	50	-	-	None
BTC04	CC	Introduction to Biotechnology	3	1	0	4	25	25	50	-	-	None
FExx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			26/28 2*			**24**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3)												

B.E. BIOTECHNOLOGY AUDIT COURSE AFTER SEMESTER II					Evaluation Scheme	
Course Code	**Type**	**Course**	**LTP**	**Credits**	**Theory CA-MS-ES**	**Practical CA-ES**
ACxxx	**Audit**	Audit Courses can be floated during summer break after 2nd semesters on: (XI) Courses for improvement: These will not be shown on the degree. (XII) Courses on new themes: These will be shown on the degree.	-	NIL	The evaluation scheme and minimum grades for getting "Satisfactory" level, will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	

AC: Audit Course

B.E. BIOTECHNOLOGY-SEMESTER III												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
BTC05	CC	Biochemistry	3	0	2	4	15	15	40	15	15	None
BTC06	CC	Microbiology	3	0	2	4	15	15	40	15	15	None
BTC07	CC	Cell Biology	3	0	2	4	15	15	40	15	15	None
BTC08	CC	Data Structure and Algorithms	3	0	2	4	15	15	40	15	15	None
BTC09	CC	Chemical Engg. Principles	3	1	0	4	25	25	50	-	-	None
FExxx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			26/28 2*			**22**						

1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3.
2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3).

B.E. BIOTECHNOLOGY-SEMESTER IV												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
BTC10	CC	Methods & Instrumentation in Biotechnology	3	1	0	4	25	25	50	-	-	None
BTC11	CC	Molecular Biology	3	0	2	4	15	15	40	15	15	None
BTC12	CC	Immunology	3	0	2	4	15	15	40	15	15	None

BTC13	CC	Database Management Systems	3	0	2	4	15	15	40	15	15	None
BTC14	CC	Genetics	3	0	2	4	15	15	40	15	15	None
FExx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			26/28 2*			**22**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3).												

B.E. BIOTECHNOLOGY AUDIT COURSES AFTER SEMESTER IV					**Evaluation Scheme**	
Course No.	**Type**	**Course**	**LTP**	**Credits**	**Theory CA-MS-ES**	**Practical CA-ES**
ACxxx	**Audit**	Audit Courses can be floated during summer break after 4th semester on: (i) Courses for improvement: These will not be shown on the degree. (ii) Courses on new themes : These will be shown on the degree.	-	NIL	The evaluation scheme and minimum grades for getting "Satisfactory' level, will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	

AC: Audit Course

B.E. BIOTECHNOLOGY-SEMESTER V													
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
BTC15	CC	Recombinant DNA Technology	3	0	2	4	15	15	40	15	15	None
BTC16	CC	Structural Biology	3	0	2	4	15	15	40	15	15	None
BTC17	CC	Fundamentals of Biochemical Engineering	3	0	2	4	15	15	40	15	15	None
BTC18	CC	Enzymology	3	0	2	4	15	15	40	15	15	None
1*	ED/G /O	Elective(s)	-	-	-	-	-	-	-	-	-	-
			2*			**16 – 28 3***						
1*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4 - 6. The course code will depend upon student's choice of elective(s).												

The actual weakly load will depend upon the electives chosen by the student.
2*: The actual weekly load will depend upon the elective(s) chosen by the student.
3*: A student may register for courses leading to a minimum of 16 credits and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

B.E. BIOTECHNOLOGY-SEMESTER VI													
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
BTC19	CC	Bioprocess Technology	3	0	2	4	15	15	40	15	15	None
BTC20	CC	Plant & Animal Biotechnology	3	0	2	4	15	15	40	15	15	None
BTC21	CC	Downstream Processing	3	0	2	4	15	15	40	15	15	None
1*	ED/EG /EO	Elective(s)	-	-	-	-	-	-	-	-	-	-
			2*			**12 – 28 3***						

1*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4 - 6.
The course code will depend upon student's choice of elective(s).
2*: The actual weekly load will depend upon the elective(s) chosen by the student.
3*: A student may register for courses leading to a minimum of 12 credits and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

B.E. BIOTECHNOLOGY- TRAINING AFTER SEMESTER VI												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
BTC22 *1	**CC**	Training	-	-	-	2	-	-	-	40	60	-

*1: Students will undergo Training at Industry/Research organizations/ reputed institutions during the summer vacation after VI Semester. This will be evaluated as a VII Semester subject during end-semester examination. Training gives an exposure to students on the working on practical applications of Biotechnology and on work ethics.

B.E. BIOTECHNOLOGY-SEMESTER VII												
Course No.	**Type**	**Subject**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
BTC22 1*	CC	Training	-	-	-	2	-	-	-	40	60	None

BTC232*	CC	Project-I	0	0	4	4	0	0	0	40	60	None
3*	ED/EG/EO	Elective(s)	-	-	-	-	-	-	-	-	-	-
			4*			**6 – 28 5***						

1*: The Training undertaken by students during the Summer vacation after VI Semester will be evaluated as a VII Semester subject during end-semester examination.
2*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of the basic sciences, mathematics, engineering subjects and human values.
3*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The course code will depend upon student's choice of elective.
4*: The actual weekly load will depend upon the elective choices of the student.
5*: A student may register for courses leading to a minimum of 6 credits and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

B.E. BIOTECHNOLOGY-SEMESTER VIII

Course No.	Type	Subject	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
BTC241*	CC	Project-II	0	0	4	4	0	0	0	40	60	None
2*	ED/EG/EO	Elective(s)	-	-	-	-	-	-	-	-	-	-
			3*			**4 – 28**						

1*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of various basic sciences, mathematics, human values and engineering subjects.
2*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The course code will depend upon student's choice of elective.
3*: The actual weekly load will depend upon the elective choices of the student.
4*: A student may register for courses leading to a minimum of 4 credits and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

TABLE - 3 LIST OF FOUNDATION ELECTIVES

Code	Name of Foundation Elective	LTP Allocation			Evaluation Scheme					Pre-Requisites
					Theory			Practical		
		L	T	P	CA	MS	ES	CA	ES	
FE001	Sports-I	0	0	4	-	-	-	60	40	None
FE002	Sports-II	0	0	4	-	-	-	60	40	FE001
FE003	NSS	0	0	4	-	-	-	60	40	None
FE004	NCC	0	0	4	-	-	-	60	40	None
FE005	Corporate Social	2	0	0	25	25	50	-	-	None

	Responsibility									
FE006	Environmental Sciences	2	0	0	25	25	50	-	-	None
FE007	Environment development and Society	2	0	0	25	25	50	-	-	None
FE008	Spoken Skills in English	2	0	0	25	25	50	-	-	None
FE009	Financial Literacy	2	0	0	25	25	50	-	-	None
FE010	Introduction to Indian society	2	0	0	25	25	50	-	-	None
FE011	Soft Skills and Personality Development	1	0	2	-	-	-	60	40	None
FE012	Business Communication and Presentation Skills	1	0	2	-	-	-	60	40	None
FE013	Theatre	0	0	4	-	-	-	60	40	None
FE014	Dance	0	0	4	-	-	-	60	40	None
FE015	Yoga	0	0	4	-	-	-	60	40	None
FE016	Digital Film Making	0	0	4	-	-	-	60	40	None
FE017	Workshop (Electrical and Mechanical)	0	0	4	-	-	-	60	40	None
FE018	Music	0	0	4	-	-	-	60	40	None
FE019	Sociology of development	2	0	0	25	25	25	-	-	None
FE020	Universal Human Values 1: Self and Family	2	0	0	25	25	50	-	-	None
FE021	Universal Human Values 2: Self Society and Nature	2	0	0	25	25	50	-	-	FE020

TABLE 4A: LIST OF DISCPLINE CENTRIC ELECTIVES WITH PRACTICAL

LTP Allocation			**Evaluation Scheme**				
			Theory			**Practical**	
L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**ES**
3	**0**	**2**	**15**	**15**	**40**	**15**	**15**

Code	**Name of Elective**	**Pre-Requisites**
BTD01	Biology of Infectious Diseases	BTC05, BTC07, BTC12
BTD02	Microbiome and Metagenome	BTC05, BTC14
BTD03	Nanobiotechnology	BTC01, BTC04, BTC10
BTD04	Cell & Tissue Engineering	BTC07,BTC20
BTD05	Molecular & Cellular Diagnostics	BTC05, BTC10
BTD06	Anatomy and Physiology	BTC05, BTC07
BTD07	Fuel Cell Technology	BTC09, BTC10,
BTD08	Computational Biology	BTC05, BTC08, BTC16
BTD09	Environmental Biotechnology	BTC04, BTC06
BTD10	Bioremediation & Waste Management	BTC06, BTC19

TABLE 4B: DISCPLINE CENTRIC ELECTIVES WITH TUTORIAL							
LTP Allocation			**Evaluation Scheme**				
L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**ES**
3	**1**	**0**	**25**	**25**	**50**	**-**	**-**
Code	**Name of Elective**		**Pre-Requisites**				
BTD31	Neurobiology		BTC05, BTC07				
BTD32	Chemical Reaction Engineering		BTC09, BTC17				
BTD33	Bioelectronics		BTC01, BTC07				
BTD34	Pharmaceutical Chemistry		BTC02, BTC05				
BTD35	Drug Design, Development & Delivery		BTC02, BTC05				
BTD36	Metagenomics and Metabolomics		BTC05, BTC14				
BTD37	Biosafety & Hazard Management		BTC06, BTC07				
BTD38	Bioenergy Fundamentals		BTC06, BTC09				
BTD39	Epigenetics		BTC11, BTC14				
BTD40	Biomechanics		BTC05, BTC07, BTC10				
BTD41	Systems Biology		BTC11, BTC16				
BTD42	Bioprocess Plant Design		BTC17, BTC19				

TABLE 5 : GENERIC ELECTIVES (GE)
A student may take any course offered by any department of the institute under the categories of core course (cc) and discipline centric elective (ed). However, such options shall be offered to a student as per prescribed guidelines of the institute

TABLE 6 : LIST OF OPEN ELECTIVES										
Code	**Name of Open Elective**	**LTP Allocation**			**Evaluation Scheme**					**Pre-Requisites**
					Theory			**Practical**		
		L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**ES**	
EO001	Technical Communication	3	1	0	25	25	50	-	-	None
EO002	Disaster Management	3	1	0	25	25	50	-	-	None
EO003	Basics of Finance Management	3	1	0	25	25	50	-	-	None
EO004	Basics of Human Resources Management	3	1	0	25	25	50	-	-	None
EO005	Project Management	3	1	0	25	25	50	-	-	None
EO006	Basics of Corporate Law	3	1	0	25	25	50	-	-	None
EO007	Biological computing	3	1	0	25	25	50	-	-	None
EO008	Basic of social sciences	3	1	0	25	25	50	-	-	None
EO009	Entrepreneurship	3	1	0	25	25	50	-	-	None
EO010	Social work	3	1	0	25	25	50	-	-	None
EO011	Intellectual Property and Patenting	3	1	0	25	25	50	-	-	None
EO012	Supply Chain Management-Planning and logistics	3	1	0	25	25	50	-	-	None

EO013	Organization Development	3	1	0	25	25	50	-	-	None
EO014	Industrial Organisation and Managerial Economics	3	1	0	25	25	50	-	-	None
EO015	Global Strategies and Technology	3	1	0	25	25	50	-	-	None
EO016	Engineering System Analysis and Design	3	1	0	25	25	50	-	-	None
EO017	Biology for Engineers	3	1	0	25	25	50	-	-	None
EO018	Energy, Environment and Society	3	1	0	25	25	50	-	-	None
EO019	Public Policy and Governance	3	1	0	25	25	50	-	-	None
EO020	Mathematics –IV, Numerical Methods	3	0	2	15	15	40	15	15	None
EO021	Mathematics –V, Mathematical Statistics	3	1	0	25	25	50	-	-	None
EO022	Mathematics – VI, Abstract and Linear Algebra	3	1	0	25	25	50	-	-	None
EO023	Mathematics – VII, Optimization Techniques	3	1	0	25	25	50	-	-	None
EO024	Mathematics – VIII, Introduction to Mathematical Software and Programming Languages	3	0	2	15	15	40	15	15	None
EO025	Mathematics – IX, Mathematical Finance	3	1	0	25	25	50	-	-	None
EO026	Quantum Electronics	3	0	2	15	15	40	15	15	None
EO027	Laser Systems and Applications	3	0	2	15	15	40	15	15	None
EO028	Optoelectronics and Photonics	3	0	2	15	15	40	15	15	None
EO029	Electromagnetic Theory and Waveguide	3	0	2	15	15	40	15	15	None
EO030	Polymer Science and Technology	3	0	2	15	15	40	15	15	None
EO031	Semiconductor Physics and Devices	3	0	2	15	15	40	15	15	None
EO032	Elements of Fibre Optics	3	0	2	15	15	40	15	15	None
EO033	Material Physics	3	0	2	15	15	40	15	15	None
EO034	Advanced Electromagnetic Theory and Relativity	3	0	2	15	15	40	15	15	None
EO035	Fibre and Integrated	3	0	2	15	15	40	15	15	None

	Optics									
EO036	Condensed Matter Physics	3	0	2	15	15	40	15	15	None
EO037	Microwave	3	0	2	15	15	40	15	15	None
EO038	Fundamentals of Instrumentation and experimental techniques in Physics	3	0	2	15	15	40	15	15	None
EO039	Lasers and Photonics	3	0	2	15	15	40	15	15	None

MECHANICAL ENGINEERING

Scheme-Semester-Wise Course Allocation

B.E. MECHANICAL ENGINEERING-SEMESTER I												
Course Code	**Type**	**Courses**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
FC001	FC	Mathematics-I	3	1	0	4	25	25	50	-	-	None
FC002	FC	Computer Programming	3	0	2	4	15	15	40	15	15	None
FC003	FC	Electrical and Electronics Engineering	3	0	2	4	15	15	40	15	15	None
FC004	FC	Physics	3	0	2	4	15	15	40	15	15	None
FC005	FC	English –I	2	0	0	2	25	25	50	-	-	None
FExxx 1*	FE	Foundation Elective	-	-	-	2	-	-	-	-	-	-
			23/25 2*			**20**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3)												

B.E. MECHANICAL ENGINEERING-SEMESTER II												
Course Code	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
FC006	FC	Mathematics-II	3	1	0	4	25	25	50	-	-	None
FC007	FC	English - II	2	0	0	2	25	25	50	-	-	None
MEC01	CC	Chemistry	3	0	2	4	15	15	40	15	15	None
MEC02	CC	Engineering Mechanics	3	0	2	4	25	25	50	-	-	None
MEC03	CC	Workshop	2	0	4	4	15	15	40	15	15	None

		Technology										
MEC04	CC	Engineering Graphics	2	0	4	4	-	-	-	30	70	None
FE xxx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			30/32 2*			**24**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3)												

B.E. MECHANICAL ENGINEERING- AUDIT COURSES AFTER SEMESTER II					**Evaluation Scheme**	
Course Code	**Type**	**Course**	**LTP**	**Credits**	**Theory CA-MS-ES**	**Practical CA-ES**
ACxxx	**Audit**	Audit Courses can be floated during summer break after 2nd semesters on: (XIII) Courses for improvement: These will not be shown on the degree. (XIV) Courses on new themes: These will be shown on the degree.	-	NIL	The evaluation scheme and minimum grades for getting "Satisfactory" level, will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	
AC: Audit course						

B.E. MECHANICAL ENGINEERING-SEMESTER III												
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MEC05	CC	Machine Drawing	2	0	4	4	15	15	40	15	15	None
MEC06	CC	Manufacturing Processes-I	3	0	2	4	15	15	40	15	15	None
MEC07	CC	Mathematics -III	3	1	0	4	25	25	50	-	-	None
MEC08	CC	Thermal Engineering	3	0	2	4	15	15	40	15	15	None
MEC09	CC	Science of Materials	3	1	0	4	25	25	50	-	-	None
FExxx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			26/28 2*			**22**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3).												

B.E. MECHANICAL ENGINEERING-SEMESTER IV													
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MEC10	CC	Kinematics & Dynamics of Machines	3	0	2	4	15	15	40	15	15	None
MEC11	CC	Mechanics of Solids	3	0	2	4	15	15	40	15	15	None
MEC12	CC	Fluid Mechanics	3	0	2	4	15	15	40	15	15	None
MEC13	CC	Manufacturing Processes-II	3	0	2	4	15	15	40	15	15	None
MEC14	CC	Management of Manufacturing Systems	3	1	0	4	25	25	50	-	-	None
FExxx 1*	FE	Elective Foundation	-	-	-	2	-	-	-	-	-	-
			26/28 2*			**22**						
1*: The course codes, LTP distribution and Evaluation Scheme for Foundation Electives are given in Table 3. 2*: The actual weekly load depends upon the elective chosen by the student under FE (Refer Table 3).												

B.E. MECHANICAL ENGINEERING- AUDIT COURSESAFTER SEMESTER IV					**Evaluation Scheme**	
Course No.	**Type**	**Course**	**LTP**	**Credits**	**Theory CA-MS-ES**	**Practical CA-ES**
ACxx	**Audit**	Audit Courses can be floated during summer break after 4th semester on: (i) Courses for improvement: These will not be shown on the degree. (ii) Courses on new themes : These will be shown on the degree.	-	NIL	The evaluation scheme and minimum grades for getting "Satisfactory' level, will be decided by the Department. Student has to achieve the minimum grades prescribed for getting "Satisfactory" level.	
AC: Audit Course						

B.E. MECHANICAL ENGINEERING-SEMESTER V													
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MEC15	CC	Industrial Engineering	3	0	2	4	15	15	40	15	15	None
MEC16	CC	Refrigeration & Air-conditioning	3	0	2	4	15	15	40	15	15	None
MEC17	CC	Transducer and Measurement	3	0	2	4	15	15	40	15	15	None
MEC18	CC	Control Systems	3	0	2	4	15	15	40	15	15	None
MEDxx 1*	EG/ED/EO	Elective (s)	-	-	-	-	-	-	-	-	-	-
			2*			**16-28 3***						
1*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The course code will depend upon student's choice of elective(s). 2*: The actual weekly load will depend upon the elective(s) chosen by the student. 3*: A student may register for courses leading to a minimum of 16 credits and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.													

B.E. MECHANICAL ENGINEERING-SEMESTER VI												
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MEC19	CC	Heat & Mass Transfer	3	1	0	4	25	25	50	-	-	None
MEC20	CC	Fluid Systems	3	0	2	4	15	15	40	15	15	None
MEC21	CC	Machine Element Design	3	0	2	4	15	15	40	15	15	None
MEC22	CC	Mechanical Vibration	3	0	2	4	15	15	40	15	15	None
MEDxx 1*	EG/ED/EO	Elective (s)	-	-	-	-	-	-	-	-	-	-
			2*			**16-28 3***						
1*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The course code will depend upon student's choice of elective(s).												

2*: The actual weekly load will depend upon the elective(s) chosen by the student.
3*: A student may register for courses leading to a minimum of 16 credits and a maximum of 28 credits. Normally a student registers for courses leading to 22 credits.

B.E. MECHANICAL ENGINEERING - INDUSTRIAL VISIT/TRAINING AFTER SEMESTER VI													
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MEC23 *1	**CC**	Training	--	-	-	2	-	-	-	40	60	None
*1: Students will undergo Training in the industry or research organization/reputed institute after VI Semester. This will be evaluated as a VII Semester course during end-semester examination. Industrial Training gives exposure to students on the working of the industry, on research direction & practical applications of Mechanical Engineering and on work ethics.													

B.E. MECHANICAL ENGINEERING-SEMESTER VII												
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MEC23 1*	CC	Training	-	-	-	2	-	-	-	40	60	None
MEC24 2*	CC	Project-I	-	-	4	4	-	-	-	40	60	None
MEC25	CC	Product Design	2	0	4	4	15	15	40	15	15	None
MEDxx **3***	EG/ED /EO	Elective(s)	-	-	-	-	-	-	-	-	-	-
			4*			**6-28 5***						
1*: Training undertaken by students during the Summer vacation after sixth Semester will be evaluated as a VII Semester subject during end-semester examination. 2*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of the basic sciences, mathematics, engineering subjects and human values. 3*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 4-6. The course code will depend upon the elective(s) chosen by the student. 4*: The actual weekly load will depend upon the elective(s) chosen by the student. 5*: A student may register for courses leading to a minimum of 10 credits and a maximum of 28 credits. Normally, a student registers for courses leading to 22 credits.												

B.E. MECHANICAL ENGINEERING-SEMESTER VIII												
Course No.	**Type**	**Course**	**L**	**T**	**P**	**Credits**	**Evaluation Scheme (Percentage weights)**					**Pre-requisites**
							Theory			**Practical**		
							CA	**MS**	**ES**	**CA**	**ES**	
MEC261*	CC	Project-II	-	-	-	4	-	-	-	40	60	None
MEDxx 2*	EG/ED /EO	Elective(s)	-	-	-	-	-	-	-	40	60	-
			3*			**4-28 4***						

1*: Project work is based on the students' ability to understand, design and implement the fundamental concepts of various basic sciences, mathematics, human values and engineering subjects.
2*: The LTP allocation, Evaluation Scheme and Pre-requisites for Electives are given in Tables 3-6.
3*: The actual weekly load will depend upon the elective(s) chosen by the student.
4*: A student may register for courses leading to a minimum of 4 credits and a maximum of 28 credits. Normally, a student registers for courses leading to 22 credits.

TABLE-3 LIST OF FOUNDATION ELECTIVES

Code	**Name of Foundation Elective**	**LTP Allocation**			**Evaluation Scheme Theory (T), Practical (P)**					**Pre-Requisites**
		L	**T**	**P**	**CA (T)**	**MS (T)**	**ES (T)**	**CA (P)**	**ES (P)**	
FE001	Sports-I	0	0	4	-	-	-	60	40	None
FE002	Sports-II	0	0	4	-	-	-	60	40	FE001
FE003	NSS	0	0	4	-	-	-	60	40	None
FE004	NCC	0	0	4	-	-	-	60	40	None
FE005	Corporate Social Responsibility	2	0	0	25	25	50	-	-	None
FE006	Environmental Sciences	2	0	0	25	25	50	-	-	None
FE007	Environment development and Society	2	0	0	25	25	50	-	-	None
FE008	Spoken Skills in English	2	0	0	25	25	50	-	-	None
FE009	Financial Literacy	2	0	0	25	25	50	-	-	None
FE010	Introduction to Indian society	2	0	0	25	25	50	-	-	None
FE011	Soft Skills and Personality Development	0	0	4	-	-	-	60	40	None
FE012	Business Communication and	2	0	0	-	-	-	60	40	None

	Presentation Skills									
FE013	Theatre	0	0	4	-	-	-	60	40	None
FE014	Dance	0	0	4	-	-	-	60	40	None
FE015	Yoga	0	0	4	-	-	-	60	40	None
FE016	Digital Film Making	0	0	4	-	-	-	60	40	None
FE017	Workshop (Electrical and Mechanical)	0	0	4	-	-	-	60	40	None
FE018	Music	0	0	4	-	-	-	60	40	None
FE019	Sociology of development	0	0	4	-	-	-	60	40	None
FE020	Universal Human Values 1: Self and Family	2	0	0	25	25	50	-	-	None
FE021	Universal Human Values 2: Self Society and Nature	2	0	0	25	25	50	-	-	FE020

TABLE 4- PART A: LIST OF DISCIPLINE CENTRIC ELECTIVES WITH TUTORIAL

LTP Allocation			**Evaluation Scheme**				
L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**ES**
3	**1**	**0**	**25**	**25**	**50**	**-**	**-**
Code	**Name of Elective**		**Pre-Requisites**				
MED01	Value Engineering		None				
MED02	Power Plant Practice		MEC08, MEC12, MEC20				
MED03	Solar Energy		MEC08, MEC19, MEC07				
MED04	Reliability Engineering		MEC07, MEC15				
MED05	Industrial Quality Control		MEC15				
MED06	Design of Experiments		None				
MED07	Material Management		FC002, MEC15				
MED08	Ergonomics		MEC15				
MED09	Optimization Techniques		MEC07				
MED10	Micro Electro Mechanical Systems (MEMS)		MEC11				
MED11	Composite Materials		MEC09				
MED12	Micro/ Nano Machining		MEC13				
MED13	Advanced FMS		MEC13				

TABLE 4: PART B: LIST OF DISCIPLINE CENTRIC ELECTIVES WITH PRACTICAL							
LTP Allocation			**Evaluation Scheme**				
L	**T**	**P**	**CA**	**MS**	**ES**	**CA**	**ES**
3	**0**	**2**	**15**	**15**	**40**	**15**	**15**
Code	**Name of Elective**		**Pre-Requisites**				
MED21	Automotive Engineering		MEC05, MEC10, MEC21				
MED22	Finite Element Methods		MEC08, MEC12, MEC11				
MED23	Fracture Mechanics		MEC02, MEC11				
MED24	Gear Technology		MEC10				
MED25	Industrial Drives		FC003				
MED26	Rapid Prototyping and Tooling		MEC14				
MED27	Modern Methods of Manufacturing		MEC06, MEC13				
MED28	Industrial Tribology		MEC21				
MED29	Automation in Manufacturing		MEC03, MEC06				
MED30	Mechatronics		FC003, MEC17, MEC18				
MED31	Artificial Intelligence		MEC07				
MED32	Robotics		MEC10				

TABLE-5: GENERIC ELECTIVES (EG)
A student may take any course offered by any department of the institute under the categories of core course (cc) and discipline centric elective (ed). However, such options shall be offered to a student as per prescribed guidelines of the institute.

TABLE-6: LIST OF OPEN ELECTIVES								
LTP Allocation			**Evaluation Scheme**					
L	**T**	**P**	**CA**		**MS**	**ES**	**Int.**	**Ext.**
3	**1**	**0**	**25**		**25**	**50**	**-**	**-**
Code	**Name of Elective**		**L**	**T**	**P**	**Pre-requisites**		
EO001	Technical Communication		3	1	0	None		
EO002	Disaster Management		3	1	0	None		
EO003	Basics of Finance Management		3	1	0	None		
EO004	Basics of Human Resources Management		3	1	0	None		
EO005	Project Management		3	1	0	None		
EO006	Basics of Corporate Law		3	1	0	None		
EO007	Biological computing		3	1	0	None		
EO008	Basic of social science		3	1	0	None		
EO009	Entrepreneurship		3	1	0	None		
EO010	Social work		3	1	0	None		
EO011	IP and Patenting		3	1	0	None		
EO012	Supply Chain Management-Planning and logistics		3	1	0	None		

EO013	Organization Development	3	1	0	None
EO014	Industrial Organization and Managerial Economics	3	1	0	None
EO015	Global Strategy and Technology	3	1	0	None
EO016	Engineering System Analysis and Design	3	1	0	None
EO017	Biology for Engineers	3	1	0	None
EO018	Energy, Environment and Society	3	1	0	None
EO019	Public Policy and Governance	3	1	0	None

OPEN ELECTIVES					
Course Code	**Course name**	**L**	**T**	**P**	**Pre-requisites**
EO020	Numerical Methods	3	0	2	None
EO021	Mathematical Statistics	3	1	0	None
EO022	Abstract and Linear Algebra	3	1	0	None
EO023	Optimization Techniques	3	1	0	None
EO024	Introduction to Mathematical Software and Programming Languages	2	0	4	None
EO025	Mathematical Finance	3	1	0	None
EO026	Quantum Electronics	3	0	2	None
EO027	Laser Systems and Applications	3	0	2	None
EO028	Optoelectronics and Photonics	3	0	2	None
EO029	Electromagnetic Theory and Waveguide	3	0	2	None
EO030	Polymer Science and Technology	3	0	2	None
EO031	Semiconductor Physics and Devices	3	0	2	None
EO032	Elements of Fibre Optics	3	0	2	None
EO033	Material Physics	3	0	2	N one
EO034	Advanced Electromagnetic Theory and Relativity	3	0	2	None
EO035	Fibre and Integrated Optics	3	0	2	None
EO036	Condensed Matter Physics	3	0	2	None
EO037	Microwave	3	0	2	None
EO038	Fundamentals of Instrumentation and experimental techniques in Physics	3	0	2	None
EO039	Lasers and Photonics	3	0	2	None

9. Amendments to Ordinance V (1) (5), Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University regarding introduction of two year Advanced Diploma in TV Programmes and News Production. (Page No. 282 of University Calendar Vol-I (2004)) (E.C. 28.02.2017/07.03.2017)

ADVANCED DIPLOMA IN TV PROGRAMME & NEWS PRODUCTION

Advance Diploma in TV Programme & News Production will be run under community college scheme. Duration of this course will be 2 years i.e. 4 semesters with multiple exit points at 6th Month (after completion of first semester), 12th Month (after completion of second semester). In case of exit after 1st Semester Certificate in TV Programme & News Production will be awarded to the learner and after 12 months Diploma in TV Programme & News Production will be awarded.

Seats Available

Advance Diploma in TV Programme & News Production offers 50 seats (5 seats are reserved for PWD); preference will be given to the learners living in the local community. Rules and regulations for admission under reserved categories will be followed as per government norms and policies.

Eligibility:

The minimum educational qualification for admission into **'Advance Diploma in TV Programme & News Production'** is 10+2 pass or equivalent from any recognized board or university Or Level-3 and Level-4 NVEQF / NSQF. For admission in 'Advance Diploma in TV Programme & News Production' preference will be given to the learners living in the local community. Rules and regulations for admission for reserved categories shall be followed as per government norms and policies. There is no age bar for admission in the course.

Admissions:

1. Admission to **'Advance Diploma in TV Programme & News Production'** course will be based on performance in best 4 subjects of qualifying examination & Personal Interview of the candidate.
2. Weightage to qualifying examination marks & Interview will be in ratio of 70:30.
3. Call list for the Interview will be drawn on the basis of their best 4 marks of qualifying examination. 3 candidates may be called against one seat for personal interview.
4. Candidates have to present all original documents at the time of Personal Interview.
5. The applicants seeking re-entry into the college will get preference in admission over the new applicants.
6. All efforts will be made to make sure that no seat remains vacant. In case reserve category candidates are not available, vacant seats will be filled by general category candidates.

7. Following documents are required for admissions in **'Advance Diploma in TV Programme & News Production'**
   a. 10^{th} Mark sheet + Certificate
   b. 10+2 Mark sheet + Certificate
   c. TC / Migration Certificate
   d. Character Certificate
   e. Category or/& latest Income Certificate (if required)
8. Candidate may be asked to submit all testimonials including category & income certificates in original to the college office for further verifications.

Fee for the Course

Fee of Rs. 6,000 per annum will be charged to each student enrolled in the course. The fund collected from the learners as student fee shall be used to recover part of the operating expenditure.

Scholarship

A scholarship of Rs. 1,000/- per month may be given to meritorious and regular students.

Guidelines for credit calculations

The following formula will be used for conversion of time into credit hours to facilitate multiple entry and exit at each level (or within a level) with the bundle of credits earned, clearly certified by the Community College.

(a) One Credit would mean equivalent of 14-15 periods of 60 minutes each, for theory, workshops / labs and tutorials.
(b) For internship / field work, the credit weightage for equivalent hours shall be 50% of that for lectures / workshops.
(c) For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study shall be 50% of that for lectures / workshops as per UGC GUIDELINES FOR COMMUNITY COLLEGES.

Awards could be given at each stage as per Table below, when there are enough students who enter the College after completing Level-1 to 4 of Skill components of the NVEQF.

NVEQF Level	Skill Component Credits	General Education Credits	Normal Calendar duration (post meeting the entry criterion)	Exit Points / Awards
6	72	48	Four Semesters	Advance Diploma
	36	24	Two Semesters	Diploma

5	18	12	One Semester	Advance Certificate
	9	6	Three Months	Certificate
Entry: 10+2 or equivalent certificate along with certificate for meeting the learning outcomes of the Vocational / Skills components of Level-1 to Level-4 under NVEQF.				

On completion of Advanced Diploma (120 Credits), a student is eligible for admission to Level-7 (third year), leading to B (Voc.) Degree.

Scheme of Papers

SEMESTER	PAPERS	No. of Hours / Credits
SEM-I	GEC 101: Communication Skill GEC 102: Information Technology GEC 103: Introduction to Television	4 Credits 4 Credits 4 Credits
	104: Introduction to TV News Script 105: Introduction to TV Programme Script 106: Practical- Script Writing 107: Project (Live Project with Industry / Community)	6 Credits 6 Credits 3 Credits 3 Credits
SEM-II	GEC 201: Environmental Studies GEC 202: हिंदीलेखनकौशल : विस्तारएवंसंभावनाएं GEC 203: Television Production	4 Credits 4 Credits 4 Credits
	204 : Video & Audio Technology 205: Basics of Production Management 206:Practical - Production Management 207: Project (Live Project with Industry / Community)	6 Credits 6 Credits 3 Credits 3 Credits
SEM III	GEC 301: Fundamentals of Management & Organizational Behaviour GEC 302: Media Industry and Management	6 Credits 6 Credits
	303: News Production Process 304: TV Reporting 305: Copy Editing 306: Unit Production 307: Practical : News Production 308: Project (Live Project with Industry / Community)	3 Credits 3 Credits 3 Credits 3 Credits 3 Credits 3 Credits
SEM IV	GEC 401:Entrepreneurship GEC 402: Making Decisions GEC 403: Screen & GFX Communication	4 Credits 4 Credits 4 Credits
	404: Sound Direction 405: Light Direction 406: Video Editing 407: News Direction 408: Fiction Direction 409: Practical – Production 410: Project (Live Project with Industry / Community)	2 Credits 2 Credits 2 Credits 3 Credits 3 Credits 3 Credits 3 Credits

ASSESSMENT

Scheme of Examination

1. In each paper up to 33 % marks will be for continuous internal assessment, which may be based on written assessment, tests, case presentation, group discussion, practical exercise etc.
2. Written examination will be conducted for up 70% marks in theory & 66% Skill based papers. Duration of the written examination will be of 3 hrs.
3. A practical examination / viva-voce will be held for practical papers & projects.
4. Classes / contact hours for one credit should be 15 hrs, thus for 4 credit paper 60 hrs are mandatory, for 6 Credits 90 hrs, for 3 Credits 90 hrs are mandatory.
5. For practical / viva-voce examinations board of examiners shall be appointed by the principal, Members of the board shall be one external examiner from the Industry / MESSC /Academia / expert along with the internal faculty.

SEM	PAPERS	No. of Hours/ Credits	Continuous Assessment	Theory Examination	Practical / Viva-Voce Examination	Total
SEM-I	GEC 101: Communication Skill	4 Credits	25	75	NA	100
	GEC 102: Information Technology	4 Credits	25	75	NA	100
	GEC 103: Introduction to Television	4 Credits	25	75	NA	100
	104: Introduction to TV News Script	6 Credits	50	100	NA	150
	105: Introduction to TV Programme Script	6 Credits	50	100	NA	150
	106: Practical Script Writing	3 Credits	25	NA	50	75
	107: Project (Live Project with Industry / Community)	3 Credits	25	NA	50	75
SEM-II	GEC 201: Environmental Studies	4 Credits	25	75	NA	100
	GEC 202: हिंदीलेखनकौशल : विस्तारएवंसंभावनाएं	4 Credits	25	75	NA	100
	GEC 203: Television Production	4 Credits	25	75	NA	100
	204: Video & Audio Technology	4 Credits	25	75	NA	100
	205: Basics of Production Management	4 Credits	25	75	NA	100
	206:Practical Production Management	3 Credits	25	NA	50	75
	207: Project (Live Project with Industry / Community)	90 Hrs / 3 Credits	25	NA	50	75

SEM III	GEC 301: Fundamentals of Management & Organizational Behaviour	6 Credits	30	70	NA	100
	GEC 302: Media Industry and Management	6 Credits	30	70	NA	100
	303: News Production Process	3 Credits	30	70	NA	100
	304: TV Reporting	3 Credits	30	70	NA	100
	305: Copy Editing	3 Credits	30	70	NA	100
	306: Unit Production	3 Credits	30	70	NA	100
	307: Practical- News Production	3 Credits	25	NA	50	75
	308: Project (Live Project with Industry / Community)	3 Credits	25	NA	50	75
SEM IV	GEC 401:Entrepreneurship	4 Credits	30	70	NA	100
	GEC 402: Making Decisions	4 Credits	30	70	NA	100
	GEC 403: Screen & Gfx Communication	4 Credits	30	70	NA	100
	404: Sound Direction	2 Credits	30	70	NA	100
	405: Light Direction	2 Credits	30	70	NA	100
	406: Video Editing	2 Credits	30	70	NA	100
	407: News Direction	3 Credit	30	70	NA	100
	408: Fiction Direction	3 Credits	30	70	NA	100
	409: Practical - Production	3 Credits	25	NA	50	75
	410: Project (Live Project with Industry / Community)	3 Credits	25	NA	50	75

10. Amendments to Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University regarding introduction of Skill Enhancement Courses (SEC) for B.A. (Hons.) under CBCS (Semester III & IV). (E.C. 28.02.2017/07.03.2017).

1. HARMONIUM COURSE IN HINDUSTANI MUSIC – INSTRUMENTAL

SEMESTER - III (SEC - I)

Max. Marks : 100 **Practical: 38**
Credits : 4 **Internal Assessment: 12**

Practical

- Elementary Knowledge of Harmonium, its various parts and various types of Harmonium and finger techniques.
- Ability to play & write (10) ten Alankars of shuddha & vikrit swaras.
- 15 general alankars with finger techiniques in above mentioned ragas.
- Elementary knowledge of shuddha and vikrit swaras, saptak, vadi, samvadi, pakad.
- Ability to play one drut composition in any one of the following ragas with alaap and 5 tanas and description of Ragas presented:
  a) Yaman
  b) Bhoopali
  c) Bhairav
- Elementary knowledge of following talas - Teentaal, Ektal, Keherwa, Dadra.

2 lectures per week

Theory

Theory: 38
Internal Assessment: 12

- Brief History of Harmonium.
- Drawing sketch of Harmonium with its various parts.
- Write ten Alankars with finger techniques.
- Definition of Swar, Saptak, Vadi, Samvadi, Pakad.
- Write in notation of a fast Gat/ Bandish in prescribed Ragas.
- Description of Ragas prescribed.
- Notation writing of Talas with Dugun & Chaugun.

2 lectures per week

SEMESTER - IV (SEC -II)

Max. Marks : 100 **Practical: 38**
Credits : 4 **Internal Assessment: 12**

Practical

- Structural details of Harmonium with a sketch.
- Ability to write a notation of any fast composition in Bhatkhande's notation system.
- Ability to play two fast/Drut compositions with alaap and atleast 10 tanas in one of the following ragas:
  a) Alhaiya Bilawal

b) Bihag
c) Malkauns

- Ability to play a dhun in Raga Kafi or Khamaj.
- Elementary knowledge of Chautala, Jhaptala & Dadra.

2 lectures per week

Theory: 38
Internal Assessment: 12

Theory

- Write ten advance Alankars.
- Definition of That, Raga, Tala, Naad and its characteristics, harmony and melody.
- Write in notation of Gat/Bandish in prescribed Ragas.
- Description of Ragas prescribed.
- Notation of Talas with Dugun & Chaugun.

2 lectures per week

2. MAINTENANCE AND REPAIRING OF MUSICAL INSTRUMENTS IN HINDUSTANI MUSIC

SEMESTER III (SEC - I)

Max. Marks : 100 **Practical: 38**
Credits : 4 **Internal Assessment: 12**

Practical

1. Elementary knowledge of tuning of string/ percussion instruments viz.- sitar, Tanpura, Sarangi, Sarod, guitar, Violin , Tabla, Pakhawaj, Dholak & Naal etc.
2. General discussion of instruments making in India (String & Percussion).
3. Knowledge of basic tools, required for making and repairing various instruments.
4. Fixing strings in various string instruments viz.- Sitar, Tanpura, Sarangi, Sarod, Guitar, Violin, etc. (both main and sympathetic)
5. Fixing of frets in sitar/ Fixing and stretching Baddhi in Percussion instruments.
6. Practical Examination with Viva-voce not less than 20 minutes duration.

2 lectures per week

Theory: 38
Internal Assessment: 12

Theory

1. Elementary knowledge of tuning of string/ percussion instruments viz.- sitar, Tanpura, Sarangi, Sarod, guitar, Violin , Tabla, Pakhawaj, Dholak & Naal etc.
2. Brief history of instruments making in India from Ancient to Modern times.
3. Elementary know how of basic tools, required for making and repairing various instruments.
4. How to fix strings in various string instruments viz.- Sitar, Tanpura, Sarangi, Sarod, Guitar, Violin etc. (both main and sympathetic).
5. How to tie frets in Sitar/ Fixing and stretching of Baddhi in Percussion instruments.

2 lectures per week

SEMESTER IV (SEC - II)

Max. Marks : 100 **Practical: 38**
Credits : 4 **Internal Assessment: 12**

Practical

1. Elementary knowledge of wood, string and other material viz. bone, stag horn and skin etc., used in making various parts of Indian instruments.
2. Elementary Knowledge of Seasoning of wood and other material.
3. Brief introduction of usages of innovative material in musical instruments in place of traditional material in India.
4. Temporary repairing of Tumba, replacing tuning pegs, Tarab buttons, chikari posts and other minor defects of string instruments.

   or

   Putting and fixing the pudi on percussion instruments.
5. Elementary knowledge of Jawari work of sitar and Tanpura/ Putting syahi (black paste) on percussion instruments.
6. Compulsory visit to a workshop of manufacturing of musical instruments.

2 lectures per week

Theory: 38
Internal Assessment: 12

Theory

1. Elementary knowledge of wood, string and other material viz. bone, stag horn and skin etc., used in making various parts of Indian instruments.
2. How the seasoning of wood & other material done in India.
3. Brief introduction of usages of innovative material in musical instruments in place of traditional material in India.
4. Brief knowledge of Acoustical properties of Musical Instruments in India.
5. Brief knowledge of temporary repairing of the following - Tumba, Tuning pegs, Tarab buttons, Chikari posts and other minor defects of string instruments.

   or

   Putting and fixing the pudi on percussion instruments.
6. Elementary knowledge of Jawari work in Sitar.

2 lectures per week

Examination Pattern in Practical:

A practical examination of the demonstration and performance of the skills learnt, which should be follows:-

a) Viva-voce of maintenance of musical instruments in general.
b) Tuning of any two of the instruments prescribed in the course.
c) Knowledge of various gadgets used for tuning.
d) Knowledge of basic tools required for making and repairing various instruments.
e) Demonstration of at least three repairing skills learnt so far in one's own instrument.

Note: Viva-Voce of all the above information, in not less than 20 minutes.

3. MRIDANGAM COURSE IN KARNATAK PERCUSSION MUSIC

SEMESTER – III (SEC – I)

Max. Marks : 100 **Practical: 38**
Credits : 4 **Internal Assessment: 12**

Theory

- Technical terminology –Elementary knowledge of all important terms used in practical lessons taught in SEC I-Tattakaram, Chapu, Meettu, Toppi, Varu, Choru.
- Understanding the concept of Tala , Laya, Gati
- Understanding of different parts of the instrument.
- Understanding of basic notation system.

2 lectures per week

Practical: 38
Internal Assessment: 12

Practical

- Basic technique of holding the instrument, sitting posture and fingering techniques.
- Knowledge of syllables (Ta, Thi, Thom, Nam, Chapu, Din and Da) and their playing style.
- Patha varisaikal – Elementary exercises in three speeds- slow, medium, fast.
- Thattakaram (Chollukkattu) and its importance in learning Mridangam.
- Different places in producing the syllables of playing Mridangam such as chapu, Meetu, Toppi etc.
- Understanding the concept of tala and Laya.

- Understanding of different parts of the instrument.
- Basic knowledge of Laya, Gati & Sulaadi Sapta Talas with Jaati bhedas.
- Elementary knowledge of tuning of Mridangam.

2 lectures per week

SEMESTER – IV (SEC – II)

Max. Marks : 100 **Practical: 38**
Credits : 4 **Internal Assessment: 12**

Theory

- Technical terminology – all terms used in the practical lessons taught in SEC II – Mohra, Pharan, Korvai, Arudi, Jaati, Gati.
- Sulaadi Sapta Talas with Jaati bhedas
- Contribution of Palghat Mani Iyer & Palani Subramanya Iyer.
- Understanding of basic notation system.
- Elementary knowledge of tuning of Mridangam

2 lectures per week

Practical: 38
Internal Assessment: 12

Practical

- Acquaintance of playing Adi/ Rupakam Talam.
- Ability to play Paran, Mohra, Karvai Arudi.

- Contribution of Palghat Mani Iyer & Palani Subramanya Iyer.
- Understanding of basic notation system.
- Ability to tune one's own instrument.

2 lectures per week

4. TABLA/ PAKHAWAJ COURSE IN HINDUSTANI - PERCUSSION MUSIC

SEMESTER - III (SEC - I)

Max. Marks : 100 **Practical: 38**
Credits : 4 **Internal Assessment: 12**

Practical

1. Basic Bols (varnas) of Tabla/ Pakhawaj.
2. Theka of Teentala/Chautaalwith Thah, Dugun, Chaugun and keep the theka by hand beats.
3. Knowledge of four Kayadas/Relas , Paltas and Tihai, One Simple and Chakradar Tukra/Paran in Teentala/Chautaal.
4. Elementary knowledge of Keherwa and Dadra Talas/ Tivra & Sooltala.
5. Basic knowledge of vocal and instrumental accompaniment.
6. Elementary knowledge of tuning of Tabla/ Pakhawaj.

2 lectures per week

Theory: 38
Internal Assessment: 12

Theory

1. Brief history of Tabla.
2. Write the varnas (Bol) of Tabla & Pakhawaj.
3. Write in notation with That, Dugun & Chaugun of Teental/ Chautal.
4. Write in notation of Kayada, Rela, Palta, Tihai and Chakrada Tukra/ Param in Teental/ Chautal.
5. Write an essay on Vocal and Instrumental Music.
6. Brief introduction of Ektala/Chautala.

2 lectures per week

SEMESTER - IV (SEC - II)

Max. Marks : 100 **Practical: 38**
Credits : 4 **Internal Assessment: 12**

Practical

1. Demonstration of theka of Jhaptala/Dhamar in Thah, Dugun and Chaugun by the hand beats.
2. Two advance Kayadas/Relas with Paltas & Tihai, two simple tukras/Parans, two chakradar tukras/Parans in Jhaptala/Dhamar.
3. Playing knowledge of Ektala and Rupak in barabar ki laya/Chautala & Teevra.
4. One Kayada each of 'Tirkitataka' and 'Dhirkit' in Teentala/Chautaal.
5. Four variation in Keherwa and Dadra Tala.
6. Tuning of Tabla/Pakhawaj.

2 lectures per week

Theory: 38
Internal Assessment: 12

Theory

1. Brief history of Gharanas of Tabla.
2. Drawing sketch of Tabla with its various parts.
3. Write in notation with That, Dugun & Chaugun of Jhaptal and Dhamar.
4. Write in notation of Kayada, Rela, Palta, Tihai and Chakradar Tukra/ Param in Jhaptal/ Dhamar.
5. Write in Notation with That, Dugun & Chaugun of Dadra and Keharva.
6. Brief introduction of Rupak Tala/ Tivra Tala.

2 lectures per week

5. THUMRI-DADRA COURSE IN HINDUSTANI MUSIC

SEMESTER III (SEC - I)

Max. Marks : 100 **Practical: 38**
Credits : 4 **Internal Assessment: 12**

Practical

1. General discussion of two styles of Thumri
2. Study of the following ragas with vistar, followed by Thumri, in any one raga and one Dadra in any other raga.
    - Bhairavi
    - Khamaj
    - Kafi
3. Demonstration of the following talas with theka, dvigun, tigun and chaugun by hand beats.
    - Deepchandi
    - Kaharva
    - Addha tritaal
4. Ability to tune the tanpura.
5. There shall be a performance of 15 minutes of Thumri and a 5 minute presentation of Dadra in any raga of the student's choice.

2 lectures per week

Theory: 38
Internal Assessment: 12

Theory

1. A brief history of Thumri and its styles.
2. Notation writing of Thumri and Dadra in prescribed Ragas.
3. Description of Ragas prescribed.
4. Write in notation Deepchandi, Keharwa and Adi Teen Tal with Dugun & Chaugun.
5. Principles of tuning a Tanpura.

2 lectures per week

SEMESTER IV (SEC - II)

Max. Marks : 100 **Practical: 38**
Credits : 4 **Internal Assessment: 12**

Practical

1. Introduction to various musical instruments used for accompaniment in a Thumri or Dadra recital, viz. Tabla, Sarangi and Harmonium.
2. Features of Dadra singing.
3. Study of the following ragas with vistar, followed by Thumri, in any one raga and one Dadra in any other raga.
    - Des
    - Piloo
    - Tilang
4. Demonstration of the following talas with theka, dvigun, tigun and chaugun by hand beats.
    - Deepchandi
    - Dadra
    - Chachar
5. Ability to tune the Tanpura.
6. There shall be a performance of 15 minutes of Thumri and a 5 minute presentation of Dadra in any raga of the student's choice.

2 lectures per week

Theory: 38
Internal Assessment: 12

Theory

1. Give a brief history of Harmonium, Sarangi and Tabla.
2. Write in notation of Thumri and Dadra in prescribed ragas.
3. Description of Ragas prescribed.
4. Write in notation of Dadra and Chachar with Dugun, Tigun & Chaugun.
5. Principles of tuning of Tabla & Sarangi

2 lectures per week

6. VEENA/ VIOLIN COURSE IN KARNATAK MUSIC

SEMESTER – III (SEC – I)

Max. Marks : 100 **Theory: 38**
Credits : 4 **Internal Assessment: 12**

Theory

- Technical terminology – Elementary knowledge of Nada, Sruti, Swara , Swarasthana, Raga, Aroha, Avroha, Laya , Tala, Anibaddha, Nibaddha
- Brief Ragalakshana of Mayamalavagaula /Shankarabharana
- Understanding of basic notation system.
- Knowledge of different parts of the instrument and basic playing techniques

2 lectures per week

Practical: 38
Internal Assessment: 12

Practical

- Basic Technique of holding the instrument, plucking/ bowing and fingering.
- Knowledge of Swarasthanas.
- Acquaintance with three major speeds – Slow (Vilambit), Medium (Madhya), Drut (fast).
- Simple Swara exercises – Variation in three speeds.
- Elementary know how of tech term swara, swarasthana, laya, tala and other technical terms.
- Understanding of different parts of the instrument.
- Elementary knowledge of tuning Veena/ Violin.

2 lectures per week

SEMESTER – IV (SEC – II)

Max. Marks : 100 **Theory: 38**
Credits : 4 **Internal Assessment: 12**

Theory

- **Technical Terminology –** Elementary knowledge of Gamakas, Mela, Janaka –Janya Ragas , Vadi, Samvadi , Anuvadi and Vivadi , Varja ,Vakra ,Sampoorna
- Sooladi Sapta Talas and their five Jatis
- Knowledge of Musical forms Namavali, Gitam, Varnam , Kriti .
- Ability to write simple notations in Adi Tala
- Knowledge of brief Raga lakshanas of ragas taught
- Important contributions of any two

  Vina: Veena Dhanammal , Karaikudi Brothers , Veena Sheshanna , Mysore Doraiswamy Iyengar

  Violin: Rajamanikyam Pillai , Mysore Chowdiah , Tirukodikaval Krishna Iyer, Parur Sundaram Iyer.

2 lectures per week

Practical: 38
Internal Assessment: 12

Practical

- One Nottuswara composition of Muthuswami Dikshitar/ Namavali/ or any simple composition in Adi/ Rupaka Talam in a Raga of choice.
- One simple Geetam and a Simple Varnam in Adi/ Rupaka Talam in a Raga of choice.
- Knowledge of brief raga lakshanas of ragas taught.
- Contribution of Ragamanikyan Pillai and Tirakodikaval Krishna Iyer, Parun Sundaram Iyer.
- Understanding of basic notation system.
- Tuning of Veena/ Violin instrument opted for.

2 lectures per week

11. Amendments to Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University regarding introduction of Generic Elective Courses (GEC) for B.A.(Hons.) other than music subject, B.Com. (Hons.), B.Sc. (Hons.) under CBCS (Semester I - IV). (E.C. 28.02.2017/07.03.2017).

1. HINDUSTANI MUSIC (VOCAL/INSTRUMENTAL – SITAR/ SAROD/ GUITAR/ VIOLIN/ SANTOOR)

Generic Elective (GE) – I (Semester - I)

Max. Marks – 100
Credit – 6

Theory 38
Internal Assessment Including Project } 12

Theory

1. Technical terminology – Nada, Shruti, Swara (Shuddha & Vikrit), Alankar, Saptak, Raga, Aroha, Avroha, Pakad, Tala.
2. Definition of Sangeet.
3. General discussion about Classical, Semi Classical and Light music.
4. Brief introduction of Music in vedic period.
5. Detailed study of prescribed Ragas – Alahiya Bilawal & Bhupali.
6. Ability to write Thaah, dugun & chaugun in prescribed talas – Teentaal, Jhaptaal, Keherva.
7. Project work of any one reputed classical musician – Hindustani/Karanatak.

3 lectures per week

Practical – 38
Internal Assessment – 12

Practical

1. Basic knowledge of swaras (Shuddha and Vikrit).
2. Five alankaras of Vocal/Instrumental (with bol patterns).
3. Aaroha, Avaroha and Pakad of Raag Allahiya Bilawal & Bhupali with a Lakshana Geet or a drut khayal/ Razakhani Gat.
4. Ability to keep the theka of following talas by hand beats - Tala-Teentaal, Jhaptaal & Keharva with dugun & Chaugun.
5. Guided listening & discussion of compositions/ dhun based on ragas.

3 lectures per week

Note: The candidate opting the course will start from Level One.

Generic Elective (GE) – II (Semester-II)

Max. Marks – 100 **Theory 38**
Credit – 6 **Internal Assessment Including Project } 12**

Theory

1. Raga, Thaat (Mela), Vadi, Samvadi, Laya, Tala Matra, Tali-Khali and Vibhag.
2. Brief introduction of Music in ancient period with brief discussion of the following texts:
   a) Natyashastra
   b) Sangeet Ratnakar
3. Detailed description of raga, Yaman and Kafi.
4. Ability to write notation of drut khayal/ Razakhani gat in prescribed ragas.
5. Description of following Talas: Teentala, Ektala and Dadra.
6. Ability to write tala notaion of teentala, ektala and Dadra with Thaah,Dugun, Tigun and Chaugun.
7. Project work on any one of the musical instrument of Hindustani music

3 lectures per week

Practical

Practical – 38
Internal Assessment - 12

1. Ability to sing or play five alankars with Thaah, Dugun and Tigun in different saptak: Madra, Madhya and Taar.
2. Knowledge of Musical embellishments/ different stroke patterns: Meend Kana, Murki, Khatka, Zamzama, Krintan.
3. Ability to sing or play Drut Khayal/ Razakhani gat in Raga Yaman and Kafi with five tanas.
4. Ability to keep the theka of following talas by hand beats - Teentaal, Ektala and Dadra with Dugun, Tigun and Chaugun.
5. Guided Listening and discussions of compositions/ dhun based on Ragas.

3 lectures per week

Generic Elective (GE) – III (Semester-III)

Max. Marks – 100 **Theory 38**
Credit – 6 **Internal Assessment Including Project } 12**

Theory

1. Elementary knowledge of Tanpura/ Sitar with sketch.
2. Grama, Moorchana, Gamak, Vibration, Pitch, Intensity & Timber.
3. Four fold classification of Musical Instruments.
4. Comparative study of notation system of Pt. V.D. Paluskar & Pt. V.N. Bhatkhande
5. Ability to write notation of one Vilambit Khayal or Maseetkhani Gat and one Drut Khayal or Razakhani Gat.
6. Knowledge of following talas – Teentaal, Chautaal, Ektaal with skills to write Thaah, Dugun, Tigun, Chaugun

7. Project Work on Any one of the classical musical forms of the Hindustani Music.

3 lectures per week

Practical – 38
Internal Assessment – 12

Practical
Performance & Viva-Voce

1. Knowledge of voice production/ techniques of playing of any opted instrument.
2. Ability to sing one Vilambit and one Drut khayal or play Maseetkhani and Razakhani gat with six taans in each of the prescribed ragas with jhala.
3. Ability to keep the theka by hand beats of Teentaal, Chautaal and Roopak with Dugun, Tigun and Chaugun
4. Tuning of one's own instrument i.e. Tanpura/ Sitar.
5. Guided listening of khayal singing/Thumri singing/Instrumental compositions.

3 lectures per week

Generic Elective (GE) – IV (Semester-IV)

Max. Marks – 100
Credit – 6

Theory 38
Internal Assessment Including Project } 12

Theory

1. Structural details of Harmonium and Tabla with sketch.
2. Ability to write one notation of Vilambit Khayal and Drut Khayal/ Maseetkhani Gat and Razakhani Gat with six tanas in Raga Jaunpuri and Bihag.
3. Elementary knowledge of Time theory of Indian Music.
4. Ability to write Teentala, Dhamar, Deepchandi with Thah, Dugun, Tigun and Chaugun.
5. Comparative study of Hindustani music and Karanatak music in brief...
6. Project work: Semi classical/ light/ folk music of any region.

3 lectures per week

Practical

Practical – 38
Internal Assessment – 12

Performance & Viva-Voce

1. Ability to sing one Vilambit khayal and Drut khayal or play one Maseetkhani gat and one Razakhani Gat with six tanas and Jhala in raga Jaunpuri and Bihag.
2. Ability to keep thekas of the following talas by hand beats:
   Teentala, Dhamar, Deepchandi.
3. Ability to sing one Semi classical composition in Raga Kafi/ Khamaj.
4. Guided listening with discussions of Instrumental Music/ Semi Classical forms/ composition of Karnatak Music.
5. Tuning of one's own instrument Tanpura/Sitar.

3 lectures per week

2. KARNATAK MUSIC (VOCAL/INSTRUMENTAL - VEENA/ VIOLIN)

Generic Elective (GE) – I (Semester-I)

Max. Marks – 100
Credit – 6

Theory 38
Internal Assessment / Including Project } 12

Theory

1. Technical terminology – Nada, Sruti, Swara , swarasthana , Raga, Aroha, Avroha, Laya Tala.
2. Definition of Sangeetam.
3. General discussion about Classical, Semi Classical and Light music.
4. Brief introduction of Music in Vedic period.
5. Detailed study of prescribed Ragas – Shankarabharanam ,Mohanam.
6. Ability to write basic notation system of Adi Tala
7. Project work of any one reputed classical musician – Hindustani/Karnatak.

3 lectures per week

Practical

Practical – 38
Internal Assessment – 12

1. Basic knowledge of Sapta svaras, Swara Sthanas, Sarali, Jantai, Datu, Hechu, Taggu sthayi, Svara exercises.
2. Alankaras in Triputa, Roopaka & Eka Talas, 2 Geetam, 1 Swarajati.
3. General discussion & practical exposure of classical, semi classical, folk & popular music based on Ragas.
4. Arohana& Avarohana and a simple composition in Raga Shankarabharana.
5. Introduction to Talas, Adi & Ata.
6. Guided listening to Musical forms of Karnatak Music.
7. Project on any musician – Karnatak/Hindustani music.

3 lectures per week

Note: The candidate opting the course will start from Level One.

Generic Elective (GE) – II (Semester-II)

Max. Marks – 100
Credit – 6

Theory 38
Internal Assessment / Including Project } 12

Theory

1. Mela ,Raga, Vadi, Samvadi, Laya, Tala , Gamakas, Anibaddha ,Nibaddha.
2. Brief introduction of Music in ancient period with brief discussion of the following texts:

a. Natyashastra
b. Sangeeta Ratnakara

3. Detailed description of raga, Kalyani and Kharaharapriya.
4. Ability to write notation of any one compositions taught.

5. Description of Sulaadi Sapta Talas
6. Description of Adi Tala , Rupakam , Jhampa ,Triputa with their angas.
7. Project work on any one of the musical instrument of Karnatak music

Practical– 38
Internal Assessment – 12

Practical

1. General introduction to Sthayis – Anumandra, Mandra, Madhya, Tara, Adi Tara.
2. Brief introduction to commonly used gamakas pertaining to Vocal & Instrumental Music.
3. 2 Keertanas, including Namavalis & Devarnamas of Purandara Dasa.
4. Arohana& Avarohana and a simple composition in Kalyani Raga.
5. Introduction to Adi tala (double kalai).
6. Guided listening to varieties of Musical forms.
7. Project Work – Musical Instrument.

3 lectures per week

Generic Elective (GE) – III (Semester-III)

Max. Marks – 100
Credit – 6

Theory 38
Internal Assessment Including Project } 12

Theory

1. Elementary knowledge of Tambura / Veena /Violin with sketch.
2. Grama, Moorchana, Gamaka, Vibration, Pitch, Intensity & Timber.
3. Four fold classification of Musical Instruments.
4. Basic knowledge of Raga classification – Varja ,Vakra ,Sampoorana and its varieties.
5. Ability to write notation of any two compositions taught.
6. Brief life and contributions of Purandara Dasa and Annamcharya.
7. Project Work on Any one of the classical musical forms of the Karnatak Music.

Practical – 38
Internal Assessment – 12

Practical

1. Elementary knowledge of Tambura/ opted instrument.
2. Knowledge of Vocal production/ techniques of playing the instruments.
3. Basic knowledge of Raga & its classification like Varja, Vakra, Sampoorna & its varieties.
4. Arohana, Avarohana & one composition from any two following ragas:
   Bilahari, Hamsadhwani, Sudha Dhanyasi, Pantuvarali, Suddha Saveri, Hindolam, Mohanam.
5. Knowledge of Mishra & Jhampa Tala.
6. Guided listening to varieties of Musical forms in classical ragas.
7. Contribution of Purandara Dasa and Annamacharya.
8. Project work on any one musical form of Karnatak classical music.

3 lectures per week

Generic Elective (GE) – IV (Semester-IV)

Max. Marks – 100 **Theory 38**
Credit – 6 **Internal Assessment Including Project } 12**

Theory

1. Structural details of Mridangam and Violin/Veena with sketch.
2. Knowledge of Kalapramana , Gamakas , varieties of Chapu Talas
3. Ability to write one notation of any two Alankarams and one Geetam taught.
4. Brief description of musical forms – Namavalis ,Divyanama keertana .
5. Ability to write a Geetam in Trikalaa.
6. Comparative study of Hindustani music and Karanatak music in brief.
7. Project work: Semi classical/ light/ folk music of any region.

Practical – 38
Internal Assessment – 12

Practical

1. Structural details of Violin/ Veena/Mridangam.
2. Understanding of Nada,Laya, Kalapramana, Anibadha & Nibadha.
3. Alankarams & Geetams in 3 degrees of speed.
4. Arohana, Avarohana & one composition from any two following ragas, not covered previously:
   Bilahari, Hamsadhwani, Sudha Dhanyasi, Pantuvarali, Suddha Saveri, Hindolam, Mohanam.
5. Knowledge of Namavalis, Divyanama Sankeertanas of Tyagaraja.
6. Guided listening of Musical forms based on classical ragas.
7. Contribution of Trinity, Tyagaraja, Muthuswamy Dikshitar & Syama Sastri.
8. Project – Any one musical form of folk/ regional.

3 lectures per week

3. KARNATAK MUSIC PERCUSSION – MRIDANGAM

Generic Elective (GE) – I (Semester-I)

Max. Marks – 100 **Theory 38**
Credit – 6 **Internal Assessment Including Project } 12**

Theory

1. Technical terminology – Nada, Sruti, Swara ,Swarasthana , Raga, Arohana, Avarohana, Laya,Tala.
2. Understanding of the basic notation system & ability to write notation of Talas learnt.
3. Knowledge of different parts of Mridangam .
4. 7 basic fingering techniques
5. Brief biography and important contribution of Dakshinamurthy Pillai.
6. Project on Talas and rhythms adopted in different folk forms.

3 lectures per week

Practical – 38
Internal Assessment – 12

Practical

1. Basic techniques of holding the instrument, sitting posture, and fingering techniques.
2. Knowledge of syllables and playing styles in the instrument.
3. General discussion of percussion accompaniment and practical exposure to classical, semi classical, folk and popular music based on Ragas.
4. Simple Pattuvarisaigal – ta – ti – tom , taka – dimi – kita – taka
5. Understanding the concept of laya – vilamba, madhya and druta.
6. Guided listening and discussion of playing techniques adopted by eminent percussionists.

3 lectures per week

Note: The candidate opting the course will start from Level One.

Generic Elective (GE) – II (Semester-II)

Max. Marks – 100
Credit – 6

Theory 38
Internal Assessment Including Project } 12

Theory

1. Technical terminology – Arohana, avarohana, Sangeetam, Theka, Paran, mohra, Tattakaram, Korvai
2. Notation of simple Thekas.
3. Names of Sooladi Sapta Talas with symbols
4. General classification of Musical Instruments.
5. Brief biography and important contribution of Palghat Mani Iyer
6. Project work on any one Upapakkavadyas (percussion instruments used in Karnataka music concerts).

3 lectures per week

Practical– 38
Internal Assessment – 12

Practical

1. General introduction to Aditala
2. 8 Pattuvarisaigal other than those covered in GE I
3. Simple lessons in Aditala
4. Understanding of simple Thekas
5. Understanding of Paran, Mohra and Korvai
6. Guided listening to varieties of musical forms.

3 lectures per week

Generic Elective (GE) – III (Semester-III)

Max. Marks – 100
Credit – 6

Theory 38
Internal Assessment Including Project } 12

Theory

1. Technical Terminology – Gati , Yati , Muktayippu , Arudi , Graha, Desadi, Madhyadi Tala.
2. Ability to write in notation of Talas , Muktayi , Arudi learnt
3. Brief description of Musical forms
4. Contribution of Palghat Mani Iyer.
5. Brief history of the origin and development of Mridangam .
6. Project work on existing styles of Mridangam Vidwans.

3 lectures per week

Practical – 38
Internal Assessment - 12

Practical

1. Knowledge of playing techniques of different sections of Karnataka musical forms.
2. Concept of different Yatis and Gatis (5 nadais).
3. Advanced Pattu Varisaigal other than those covered in GE-I and GE-II.
4. Knowledge of misra and jhampatalas.
5. Understanding the muktayis and arudis.
6. Understanding of playing technique for different sections of musical forms.

3 lectures per week

Generic Elective (GE) – IV (Semester-IV)

Max. Marks – 100
Credit – 6

Theory 38
Internal Assessment Including Project } 12

Theory

1. Technical Terminology – Taniavartanam, Tattakaras, Sollukettu and terms covered in GE- I, II, III.
2. Chapu Talas & Its varieties.
3. Scheme of 35 talas with Angas and Jatis.
4. Detailed knowledge of structure and construction techniques of mridangam.
5. Brief biography and important Contribution of Azhaga Nambi Pillai.
6. Project work on an important concert percussion instrument in Hindustani music

3 lectures per week

Practical – 38
Internal Assessment – 12

Practical

1. Acquaintance with tuning of Mridangam.
2. Basic knowledge of Chaputalas – Tisram, Khandam, Misram and Sankeernam.
3. Tattakaras in Sooladi Sapta Talas.

4. Guided listening and discussion of Tani avartanam.
5. Understanding of playing technique for different sections of musical forms other than those covered in GE-III.
6. Acquaintance of important Hindustani Talas.

3 lectures per week

12. Amendments to Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University regarding minor modification in the existing B.A. (Hons.) History. (Page No. 56-57 of the University Calendar Volume II (1989)) (E.C. 28.02.2017/07.03.2017).

1. Course X (History of India VI c. 1750-1857) to be taught in 4th Semester.
2. Course XII (History of India VII 1605-1750) to be taught in 5th Semester.

13. Amendments to Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University regarding minor modification in the sequence of Skill Enhancement Courses in the existing B.A. (Prog.) History. (Page No. 27 of the University Calendar Volume II (1989)) (E.C. 28.02.2017/07.03.2017).

1. Historical tourism: Theory and Practice (to be offered in 3rd Semester).
2. An introduction to archaeology OR Documentation and visual culture (to be offered in 4th Semester).
3. Museums and archives in India OR Ethnographic practices in India: tradition of embroidery, textile making, knitting, handicrafts (to be offered in 5th Semester).
4. Indian history and culture OR Orality and Oral culture in India (to be offered in 6th Semester).

14. Amendments to Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University regarding minor modification in the Discipline - Skill Enhancement Courses in the existing B.A. (Hons.) Economics for the students admitted for the academic session 2015-16. (Page No. 56 of the University Calendar Volume II (1989)) (E.C. 28.02.2017/07.03.2017).

Interchange of numbering and sequence of the existing Discipline - Specific Elective Courses Political Economy I and II for more logical development to be offered in Semesters V and VI.

15. Amendments to Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University regarding introduction of the Generic Elective Courses under CBCS in B.A. (Hons.) Economics for the students admitted for the academic session 2015-16. (Page No. 56 of the University Calendar Volume II (1989)) (E.C. 28.02.2017/07.03.2017).

1. **II (b). India and the Indian Ocean Economy, c. 1500-1800**

    - Unit 1: Introduction
    - Unit 2: Commodities and Networks: Europeans in the Indian Ocean Trade, 1500-1800
    - Unit 3: Merchants, State, Finance and Trade
    - Unit 4: Conclusion

2. **IV (b). Global Political Economy**

    - Introduction and Overview:
        a. The Global Economy since 1945 – from the Golden Age to Neoliberalism.
        b. Globalization – overview and features
    - Institutions of the Global Economy:
    - Changing Dynamics of Capitalist Production, Organisational Forms and Labour Processes.
    - The Role of Finance in the Globalized Economy.
    - The State in the Era of Globalisation.
    - Global Economic Instability and Crisis.

16. **Amendments to Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University regarding renumbering of existing Generic Elective Courses in B.A. (Hons.) Economics for the students admitted for the academic session 2015-16. (Page No. 56 of the University Calendar Volume II (1989)) (E.C. 28.02.2017/07.03.2017).**

    Semester I: I(a) Introductory Microeconomics;
    1(b) Economic History of India

    Semester II: II(a) Introductory Macroeconomics;
    II(b) India and the Indian Ocean Economy, c. 1500-1800

    Semester III: III(a) Indian Economy – I;
    III(b) Money and Banking;
    III(c) Environmental Economics

    Semester IV: IV(a) Indian Economy – II;
    IV(b) Global Political Economy;
    IV(c) Public Economics

17. Amendments to Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University regarding introduction of the Skill Enhancement Courses in B.A. (Hons.) Economics under CBCS for the students admitted for the academic session 2015-16. (Page No. 56 of the University Calendar Volume II (1989)) (E.C. 28.02.2017/07.03.2017).

SEC-III: Research Methodology

This course is designed to help undergraduate students appreciate, learn and practice data-based research skills that will help them in writing term papers, project reports etc in their Discipline and Generic Elective courses.

I. Nature of research
II. Formulating the research topic
III. Review of literature
IV. Approaches to research and research strategy
V. Research Ethics
VI. Using secondary data
VII. Using primary data – collecting data through observation/ interviews / questionnaire
VIII. Sample selection methods
IX. Analyzing data
X. Writing Project Report – Referencing Styles

Note: Internal assessment for this course will include a research paper or project report

SEC-IV: Contemporary Economic Issues

The course seeks to familiarize the students with basic concepts related to some contemporary economic issues. Its aim is to equip the students with sufficient knowledge and skills so as to understand media discussions, and to critically analyze contemporary issues that figure in high-profile government documents, in particular the Economic Survey and the Union Budget. Such capability is necessary to understand government policies and also to increase people's participation in economic decision-making. The course will also help to relate the theoretical frameworks of the Microeconomics and Macroeconomics courses to the Indian context, and to prepare students for the more detailed treatment of Indian economic issues in semesters V and VI. The emphasis in the course will be on conceptual understanding, not data.

I. Concepts

a. Fiscal policy, need for government spending, areas of government spending in India
b. Capital expenditure, revenue expenditure, plan expenditure, non-plan expenditure.

c. Deficits (fiscal, primary, revenue), impact of fiscal deficit on economy, need to control fiscal deficits,
d. Capital receipts, revenue receipts, tax and non-tax revenue, direct and indirect taxes, need to rationalize tax structure. Goods and Services Tax (GST).
e. Actuals, Revised Estimates, Budget Estimates
f. Zero-base budgeting
g. Gender budgeting
h. Fiscal devolution and centre-state financial relations in India
i. Index numbers: Laspeyres, Paasche, and ideal index numbers. WPI, CPI and implicit deflators.

II. Economic Survey

III. The Union Budget

Need for the Budget, Understanding the process of budget making in India, Analysis of budget in terms of various parameters such as:

a) Deficits – trends in fiscal deficit and revenue deficit
b) Receipts - proposed sources of revenue and expected growth in revenue; steps taken to increase revenue such as tax simplification, improvement in tax administration, expansion of tax net;
c) Expenditure - expenditure pattern and expected growth in expenditure; The thrust areas of the budget; areas / sectors which have received higher or lower share of expenditure, reasons and consequences thereof; steps proposed to ensure effective spending.

18. Amendments to Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University regarding introduction of the Skill Enhancement Courses in B.A. (Prog.) Economics for the students admitted for the academic session 2015-16. (Page No. 27 of the University Calendar Volume II (1989)) (E.C. 28.02.2017/07.03.2017).

SEC-III: Understanding the Economic Survey and Union Budget

The course seeks to familiarize the students with basic concepts related to some contemporary economic issues. Its aim is to equip the students with sufficient knowledge and skills so as to understand media discussions, and to critically analyze contemporary issues that figure in high-profile government documents, in particular the Economic Survey and the Union Budget. Such capability is necessary to understand government policies and also to increase people's participation in economic decision-making. The emphasis in the course will be on conceptual understanding, not data.

I. Concepts

a. Fiscal policy, need for government spending, areas of government spending in India
b. Capital expenditure, revenue expenditure, plan expenditure, non-plan expenditure.

c. Deficits (fiscal, primary, revenue), impact of fiscal deficit on economy, need to control
fiscal deficits,
d. Capital receipts, revenue receipts, tax and non-tax revenue, direct and indirect taxes, need to rationalize tax structure. Goods and Services Tax (GST).
e. Actuals, Revised Estimates, Budget Estimates
f. Zero-base budgeting
g. Gender budgeting
h. Fiscal devolution and centre-state financial relations in India

II. Economic Survey

III. The Union Budget

Need for the Budget, Understanding the process of budget making in India, Analysis of budget in terms of various parameters such as:

Need for the Budget, Understanding the process of budget making in India, Analysis of budget in terms of various parameters such as:
d) Deficits – trends in fiscal deficit and revenue deficit
e) Receipts - proposed sources of revenue and expected growth in revenue; steps taken to increase revenue such as tax simplification, improvement in tax administration, expansion of tax net;
f) Expenditure - expenditure pattern and expected growth in expenditure; The thrust areas of the budget; areas / sectors which have received higher or lower share of expenditure, reasons and consequences thereof; steps proposed to ensure effective spending.

SEC-IV: Research Methodology

This course is designed to help undergraduate students appreciate, learn and practice data based research skills that will help them in writing term papers, project reports etc in their Discipline and Generic Elective courses.

I. Nature of research
II. Formulating the research topic
III. Review of literature
IV. Approaches to research and research strategy
V. Research Ethics
VI. Using secondary data
VII. Using primary data - collecting data through observation/ interviews /questionnaire
VIII. Sample selection methods
IX. Analyzing data
X. Writing Project Report - Referencing Styles

Note: Internal assessment for this course will include a research paper or project report

19. Amendments to Appendix II to Ordinance V(2) & VII, and to all other relevant Ordinances of the University regarding introduction of papers to be offered in M.A. Economics Course. (Page No. 84 of the University Calendar Volume II (1989)) (E.C. 28.02.2017/07.03.2017).

1. 005: Introduction to Game Theory (modified version of existing 005)
2. 409: Applied Environmental Analysis
3. 609: Climate Change Economics
4. 905: Political Economics

COURSE 005: INTRODUCTION TO GAME THEORY

DESCRIPTION

Game Theory, which systematically studies strategic interactions, is an important tool for economists. The main goal of this course is to introduce the basic concepts of Game Theory and to illustrate its importance in explaining various kinds of economic and social phenomena, especially those relating to the functioning of markets and institutions.

SYLLABUS

A. Games with Perfect Information:

1. Strategic form games: Dominated strategy, Nash and mixed strategy Nash equilibrium, Iterated elimination
2. Extensive form games: Action and strategy, Nash Equilibrium, Subgame perfect Nash equilibrium, One-deviation property and backward induction
3. Repeated games: Finitely and infinitely repeated game,
4. Bargaining: Alternating offers bargaining: Finite and infinite horizon

B. Games with Imperfect Information

5. Imperfect information and Subgame perfection: Information Set, Mixed and behavioural strategies
6. Static games of incomplete information: Bayesian Nash equilibrium, Harsanyi transformation, Auctions
7. Dynamic games of incomplete information: Perfect Bayesian Equilibrium, Signaling games, Reputation games, Intuitive Criterion
8. Information Economics: Adverse selection, Monopolistic Screening, Moral hazard

COURSE 409: APPLIED ENVIRONMENTAL ANALYSIS

COURSE DESCRIPTION

This course focuses on empirical applications in environmental and natural resource economics. The emphasis is on understanding tools and techniques and applying them in a

hands-on manner with environmental and natural issues as the context. It comprises applied optimal control and dynamic optimisation problems using R/Matlab; computable general equilibrium (CGE) models using GAMS; and applied econometrics—cross section, panel data (static, dynamic and non-linear models) and discrete choice (limited dependent variable) models using Stata and Mata.

1. Non-market valuation techniques: revealed and stated preferences.
2. Environmental valuation at firm level: environment as an input in production; multioutput production technologies; emission generating production technologies.
3. Environmental valuation at the macro level: reduced form and computable general equilibrium models.
4. Environment and technological progress: econometric studies.
5. Dynamic applications: renewable and non-renewable resources; stock pollutants.

COURSE 609: CLIMATE CHANGE ECONOMICS

COURSE DESCRIPTION

This course focuses on climate change from an economic perspective. The problem is characterised as one of regulating a global stock externality in an intertemporal setting and in the presence of uncertainty and irreversibility. Topics covered include economic impacts of climate change, climate policy with regard to mitigation and adaptation and international cooperation. Tools of analysis include dynamic optimisation, econometrics and game theory.

1. Climate modeling: various modelling approaches to analyse climate-economy interactions including Integrated Assessment Models (IAMs).
2. The choice of discount rate for climate change policy: role of (and justification for) a pure rate of time preference; role of discounting in climate change policy.
3. Social cost of carbon (SCC): determinants of the shadow price of carbon in integrated climate-economy models.
4. Technical change and fossil energy consumption: responses to climate change in an endogenous growth model with clean and dirty technologies; implications of a transition to clean technologies in an IAM; green paradox; carbon leakage.
5. 'Tipping points' or non-linearities in the climate system and their role in formulating climate policy: fat tail probability distributions and the Weitzman Dismal Theorem
6. Mitigation (tradable permits, carbon taxes, geoengineering)
7. Impacts and Adaptation: economic impacts of climate change (focus on developing countries); adaptation.
8. Environmental treaties: applying non-cooperative and co-operative games.

COURSE 905: POLITICAL ECONOMICS

DESCRIPTION

This course introduces students to political economy of institutions and development. We explore the interrelation and interaction between state, power and economic outcome. Lectures will mainly focus on theoretical frameworks. Empirical papers will be covered through class discussions and students' presentations. As a supplement we may also read original texts on Liberalism and Marxism. The list of topics is intentionally long so that students can choose topics for self-study – a subset of topics and papers will be covered in lecture. This course is only open to M.A. (final) students. Though there are no pre-requisites, students are expected to be comfortable in basic Microeconomics and Game Theory.

SYLLABUS

A. Economics and Politics – Does politics matter?
B. Political Rent, Corruption
C. Convergence and Persistence of Policies
D. Power of Propertied Classes in Democracy
E. Democratization and Repression
F. Divide and Rule
G. Imperialism and Colonialism
H. Role of Media and Experts
I. Collective Action
J. Conflict and War

20. Addition to Ordinance XXVIII of the Ordinances of the University regarding Institution of Scholarship in the memory of "(Late) Ms. Vaishali Tomar". (Page No. 723 of the University Calendar Volume I (2004)) (E.C. 28.05.2015).

Add the following Scholarship to the existing Ordinance XXVIII at S. No.128:-

128. (Late) Ms. Vaishali Tomar Scholarship

1. The College may create/open an **"Endowment Corpus Fund"** account and the grant released of ₹ 10,00,000/- (Ten Lacs Only) may be deposited in the said account. The amount so deposited may be invested in the form of FDR in the nationalized bank.
2. The College has to institute a Scholarship in the memory of ***(Late) Ms. Vaishali Tomar*** and the scholarship so instituted will be awarded along with well-crafted certificated to the ***topper of the B.El.Ed. first year course of Aditi Mahavidyalaya*** from the interest earned on the ***"Endowment Corpus Fund"*** account for each year.
3. The 50% of the annual interest earned/accrued on the FDR will be utilized for the disbursement of the scholarship so instituted for the succeeding year and 50% shall

be ploughed back to the ***"Endowment Corpus Fund"*** in order to discount for the future inflation and maintain the real time value of the scholarship.

4. The interest on the ***"Endowment Corpus Fund"*** will accrue in next current financial year i.e. 2015-16 as such the 50% of the interest earned will be utilized for the year 2016-17.
5. The award of scholarship shall be effective from the academic year 2015-16. The Scholarship branch will take necessary action for placing the recommendations of committee's report in the ensuing Academic Council/Executive Council meeting. The expenditure for the award of scholarship for the year 2015-16 will be ***released by the University under the V.C. Students Fund*** based on the proposal received from the college. From the succeeding academic years, the scholarship shall be awarded/disbursed from the interest accrued/earned on the ***"Endowment Corpus Fund"***.
6. The statement of account of ***"Endowment Corpus Fund"*** and the utilization certificate shall be submitted to the University every year by the College. Further, administrative charges for managing endowment, selection procedure of the student and awarding the scholarship shall be the responsibility of the College.
7. The unutilized amount in any, in any year shall be added to the corpus of the endowment fund.
8. The Scholarship will be awarded to the student best all-round/Topper of the B.El.Ed first year course and the no. of scholarship may be decided by the college based the available funds on the 50 of the interest earned.
9. No student shall be eligible for award of this scholarship, if she already holds a scholarship awarded by Delhi University or any other University or the Central Government or any state Government or Private Body other free ship.
10. In case a student accepts any other scholarship/financial assistance from any other source she shall be required to refund the amount received by her on this account from the date accepts the other scholarship/financial assistance.

21. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding introduction of B.Sc.(Prog.) Applied Life Sciences Management with Agro-chemical and Pest under CBCS. (E.C. 28.02.2017/07.03.2017)

B.SC. (PROG.) APPLIED LIFE SCIENCES WITH AGRO-CHEMICAL AND PEST MANAGEMENT

Core Courses

Botany

1. Biology of life forms: Plants
2. Agricultural Botany and Weed science
3. Fundamentals of Plant Systematics and Ecology
4. Developmental Biology: Plants

Zoology

1. Animal: Form, Structure and Function
2. Cell and cellular Processes
3. Biochemistry and Immunology
4. Molecular biology and Development biology

Chemistry

1. Inorganic Chemistry
2. Organic Chemistry -1
3. Organic Chemistry -2
4. Physical Chemistry

Discipline Specific Electives

Botany (Any two)

1. Genetics and Plant Biotechnology
2. Plants regulators and Economic Botany
3. Dissertation

Zoology (Any two)

1. General Entomology
2. Applied Entomology
3. Integrated Pest Management
4. Dissertation

Chemistry (Any two)

1. Soils And Fertilizers
2. Herbicides
3. Fungicides
4. Dissertation

Ability Enhancement Compulsory Courses

1. English Communication
2. Environmental Science

Skill Enhancement Courses (Any four)

Botany

1. Medicinal Plants and IPR (Intellectual Property Rights)
2. Plants Quarantine
3. Plant health diagnostics and Management
4. Plants regulators and Economic Botany

Zoology

1. Biotechnological control of Pest
2. Biological Control
3. Insect Toxicology
4. Quality control in 1PM
5. Use of nuclear technology for agro-pest management

Chemistry

1. Conventional Insecticides
2. Biological Insecticides
3. Pesticide Formulations
4. Analytical Techniques involved in Pesticide Analysis

Scheme of Programme

Semester	Course Opted	Course name	Credits
I	**Ability Enhancement Compulsory Courses-I**	Environmental Science/ English Communication	2
	Core Course Botany -I		4
	Core Course Botany -I Practical		2
	Core Course Zoology -1		4
	Core Course Zoology -1 Practical		2
	Core Course Chemistry -1		4
	Core Course Chemistry -1 Practical		2
II	**Ability Enhancement Compulsory Courses-II**	Environmental Science/ English Communication	2
	Core Course Botany -II		4
	Core Course Botany -II Practical		2
	Core Course Zoology -II		4
	Core Course Zoology -II Practical		2
	Core Course Chemistry -II		4
	Core Course Chemistry -II Practical		2
III	Core Course Botany -III		4
	Core Course Botany -III Practical		2
	Core Course Zoology -III		4
	Core Course Zoology -III Practical		2
	Core Course Chemistry -III		4
	Core Course Chemistry -III Practical		2
	Skill Enhancement Course -I		2
IV	Core Course Botany -IV		4
	Core Course Botany -IV Practical		2
	Core Course Zoology -IV		4
	Core Course Zoology -IV Practical		2

	Core Course Chemistry -IV		4
	Core Course Chemistry -IV Practical		2
	Skill Enhancement Course II		2
V	Discipline Specific Elective Botany -I		4
	Discipline Specific Elective Botany -I Practical		2
	Discipline Specific Elective Zoology -I		4
	Discipline Specific Elective Zoology -I Practical		2
	Discipline Specific Elective Chemistry -I		4
	Discipline Specific Elective Chemistry -I Practical		2
	Skill Enhancement Course -III		2
VI	Discipline Specific Elective Botany -II		4
	Discipline Specific Elective Botany-II Practical		2
	Discipline Specific Elective Zoology -II		4
	Discipline Specific Elective Zoology -II Practical		2
	Discipline Specific Elective Chemistry -II		4
	Discipline Specific Elective Chemistry -II Practical		2
	Skill Enhancement Course -IV		2
	Total		**120**

22. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding introduction of B.Sc.(Prog.) with Industrial Chemistry under Choice Based Credit System (CBCS). (E.C. 28.02.2017/07.03.2017)

B.SC. PROGRAM WITH INDUSTRIAL CHEMISTRY

Scheme of Examination

Semester	Course Opted	Course Name	Credits
I	Ability Enhancement Compulsory Course-I	English/MIL Communications/ Environmental Science	2
	Core Course-I	**DSC 1A**: Industrial Chemicals and Environment	4
	Core Course-I Practical	Industrial Chemicals and Environment	2
	Core Course-II	**DSC-2A:** Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons	4
	Core Course-II Practical/Tutorial	**DSC-2A:** Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons Lab	2
	Core Course-III	**DSC 3A:** Mathophysics Mechanics	4
	Core Course-III Practical/Tutorial	**DSC 3A:** Mathophysics Mechanics	2
II	Ability Enhancement Compulsory Course-II	English/MIL Communications/ Environmental Science	2

	Core Course-IV	**DSC 1B:** Industrial Chemistry-Fossil Fuels, Cleansing Agents and Food Additives	4
	Core Course-IV Practical	**DSC 1B:** Industrial Chemistry-Fossil Fuels, Cleansing Agents and Food Additives	2
	Core Course-V	**DSC-2B:** Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I	4
	Core Course-V Practical/Tutorial	**DSC-2B:** Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I Lab	2
	Core Course-VI	**DSC 3B:** Calculus and Matrices	6
III	Core Course-VII	**DSC 1C:** Industrial Chemistry-Inorganic Materials	4
	Core Course-VII Practical	**DSC 1C:** Industrial Chemistry-Inorganic Materials	2
	Core Course-VIII	**DSC 2C:** Solutions, Phase Equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II	4
	Core Course-VIII Practical/Tutorial	**DSC 2C:** Solutions, Phase Equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II Lab	2
	Core Course-IX	**DSC 3C:** Algebra	6
	Skill Enhancement Course-1	**SEC-1**	2
IV	Core Course-X	**DSC 1D:** Industrial Chemistry-4: Pharmaceuticals, Fermentation, Pesticides & Perfumes	6
	Core Course-XI	**DSC 2D:** Chemistry of s- and p-block elements, States of matter & Chemical kinetics	4
	Core Course-XI Practical/Tutorial	**DSC 2D:** Chemistry of s- and p-block elements, States of matter & Chemical kinetics Lab	2
	Core Course-XII	**DSC 3D:** Physics-2: Wave and Optics	6
	Skill Enhancement Course-2	**SEC - 2**	2
V	Skill Enhancement Course-3	**SEC - 3**	2
	Discipline Specific Elective-1	**DSE-1A**	6
	Discipline Specific Elective-2	**DSE-2A**	6
	Discipline Specific Elective-3	**DSE-3A**	6
VI	Skill Enhancement Course-4	**SEC – 4**	2
	Discipline Specific Elective-4	**DSE-1B**	6
	Discipline Specific Elective-5	**DSE-2B**	6
	Discipline Specific Elective-6	**DSE-3B**	6
Total Credits			**120**

Details of Courses

Core Papers Chemistry (Credit: 06 each) (CP 1-4):

1. Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons (4) + Lab (4)
2. Chemical Energetics, Equilibria & Functional Group Organic Chemisry-1(4) + Lab (4)
3. Conductance, Electrochemistry & Functional Group Organic Chemistry-2(4) + Lab (4)
4. Chemistry of s- and p-block elements, States of matter and Chemical Kinetics (4) + Lab (4)

Core papers Industrial Chemistry (Credit: 06 each) (CP 1-4):

1. Industrial Chemicals and Environment
2. Industrial Chemistry-Fossil Fuels, Cleansing Agents and Food Additives
3. Industrial Chemistry-Inorganic Materials
4. Industrial Chemistry-4: Pharmaceuticals, Fermentation, Pesticides & Perfumes

Core papers Mathophysics (Credit: 06 each)

1. Mechanics
2. Calculus and Matrices
3. Algebra
4. Wave and optics

Discipline Specific Elective papers (Credit: 06 each) (DSE 1, DSE 2): - Choose 2

Chemistry

1. Applications of Computers in Chemistry (4) + (4)
2. Analytical Methods in Chemistry (4) + Lab (4)
3. Molecular Modelling & Drug Design (4) + Lab (4)
4. Novel Inorganic Solids (4) + Lab (4)
5. Research Methodology for Chemistry (5) + Tutorials (1)
6. Chemistry of d-block elements, Quantum Chemistry and Spectroscopy (4) + Lab (4)
7. Organometallics, Bioinorganic chemistry, Poly-nuclear Hydrocarbons and UV, IR Spectroscopy
8. Molecules of Life (4) + Lab (4)
9. Dissertation

Discipline Specific Elective papers for Industrial Chemistry:

1. Green Chemistry (4) + Lab (4)
2. Industrial Chemicals & Environment (4) + Lab (4)
3. Polymer Chemistry (4) + Lab (4)
4. Inorganic Materials of Industrial Importance (4) + Lab (4)
5. Dissertation

Discipline Specific Elective Papers for Mathophysics:

Note: Universities may include more options or delete some from this list.

Skill Enhancement Course (any four) (Credit: 02 each) – SEC 1 to SEC 4 Chemistry

1. IT Skills for Chemists
2. Basic Analytical Chemistry
3. Chemical Technology & Society
4. Chemonformatics
5. Business Skills for Chemists
6. Analytical Clinical Biochemistry

Skill Enhancement Course Industrial Chemistry

Green Methods in Chemistry
Intellectual Property Rights
Instrumental Methods of Analysis (4) + Lab (4)

Skill Enhancement Course Mathophysics:

Note: Universities may include more options or delete some from this list.

Important:

1. Each University/Institute should provide a brief write-up about each paper outlining the salient features, utility, learning objectives and prerequisites.
2. University can add/delete some experiments of similar nature in the Laboratory papers.
3. University can add to the list of reference books given at the end of each paper.

23. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding introduction of B.Sc.(Prog.) with Analytical Chemistry under Choice Based Credit System (CBCS). (E.C. 28.02.2017/07.03.2017)

B.SC. (PROG.) WITH ANALYTICAL CHEMISTRY

Core Courses

Analytical Chemistry

1. Analytical Chemistry: Basic Principles and Laboratory Operations.
2. Separation Methods - 1 (General chromatography, Centrifugation, - Dialysis)
3. Quantitative Methods of Analysis
4. Separation Methods - 2

Chemistry

1. Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons
2. Chemical Energetics, Equilibria & Functional Group Organic Solutions, Phase Equilibria

3. Conductance Electrochemistry & Functional Group Organic
4. Chemistry of s- and p-block elements, States of matter & Chemical kinetics

Matho-Physics

1. Mechanics
2. Wave and Optics
3. Calculus and Matrices
4. Algebra

Discipline Specific Electives

Analytical Chemistry (Any two)

1. Analytical Biochemistry
2. Instrumental Methods of Analysis
3. Green Chemistry'
4. Industrial Chemicals and Environment

Chemistry (Any two)

1. Applications of Computers in Chemistry
2. Molecular Modelling & Drug Design
3. Novel Inorganic Solids
4. Polymer Chemistry
5. Research Methodology for Chemistry
6. Inorganic Materials of Industrial Importance
7. Chemistry of d-Block elements, Quantum Chemistry & Spectroscopy
8. Organometallics, Bio-inorganic Chemistry, Polynuclear Hydrocarbons and UV, IR
9. Molecules of life

Matho-Physics (One each from Maths and Physics)

1. Electricity and Magnetism
2. Elements of Modern Physics
3. Medical Physics
4. Differential Equations
5. Calculus and Geometry

Ability Enhancement Compulsory Courses

1. Environmental Science
2. English/ MIL communication

Skill Enhancement Courses (Any four)

1. Biotechnology
2. Forensic Science
3. Green Methods in Chemistry
4. Intellectual Property Rights

5. Business Skills for Chemists
6. Fuel Industry
7. Pesticide Chemistry
8. Cheminformatics

Scheme of Examination

Semester	Course Opted	Course Name	Credits
I	Ability Enhancement	English Communication	**2**
	Compulsory Course-1	Environmental Science	**2**
	Core Course Analytical Chemistry -I	Basic Principles & Laboratory Operations	**4**
	Core Course Analytical Chemistry -I Practical	Basic Principles & Laboratory Operations Practical	**2**
	Core Course Chemistry -I	Atomic structure, Bonding, General Organic Chemistry, Aliphatic Hydrocarbons	**4**
	Core Course Chemistry -I Practical	Atomic structure, Bonding, General Organic Chemistry, Aliphatic Hydrocarbons Practical	**2**
	Core Course Physics -I	Mechanics	**4**
	Core Course Physics -I Practical	Mechanics Practical	**2**
II	Ability Enhancement	English Communication	**2**
	Compulsory Course-1	Environmental Science	**2**
	Core Course Analytical Chemistry 2	Separation Methods -1	**4**
	Core Course Analytical Chemistry 2 Practical	Separation Methods -1 Practical	**2**
	Core Course Chemistry 2	Chemical Energetics, Equilibria & Functional Group Organic Solutions, Phase Equilibria	**4**
	Core Course Chemistry 2 Practical	Chemical Energetics, Equilibria & Functional Group Organic Solutions, Phase Equilibria - Practical	**2**
	Core Course Mathematics 1	Calculus and matrices	**4**
III	Core Course Analytical Chemistry 3	Quantitative Methods of Analysis	**4**
	Core Course Analytical Chemistry 3 Practical	Quantitative Methods of Analysis Practical	**2**
	Core Course Chemistry 3 Practical	Conductance, Electrochemistry & Functional Group Organic Chemistry Practical	**2**

	Core Course Mathematics 2	Algebra	**4**
	Skill Enhancement Course I		
IV	**Core Course Analytical Chemistry 4**	Separation Methods-2	**4**
	Core Course Analytical Chemistry 4 Practical	Separation Methods-2 Practical	**2**
	Core Course Chemistry 4	Chemistry of s- and p-block elements, States of matter & Chemical kinetics	**4**
	Core Course Chemistry 4 Practical	Chemistry of s- and p-block elements, States of matter & Chemical kinetics -Practical	**2**
	Core Course Physics 2	Wave and optics	**4**
	Core Course Physics 2 Practical	Wave and optics practical	**2**
	Skill Enhancement Course-2		**2**
V	DSE Analytical Chemistry1		**4**
	DSE Analytical Chemistry Practical I		**2**
	DSE Chemistry1		**4**
	DSE Chemistry I Practical		**2**
	DSE Physics I		**4**
	DSE Physics I Practical		**2**
	Skill Enhancement Course 3		**2**
VI	DSE Analytical Chemistry 2		**4**
	DSE Analytical Chemistry 2 Practical		**2**
	DSE Chemistry 2		**4**
	DSE Chemistry 2 Practical		**2**
	DSE Mathematics 1		**4**
	Skill Enhancement Course 4		**2**

24. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding introduction of B.Sc.(Hons.) Statistics and Generic papers for B.Sc. (Hons.)/B.A. (Hons.) to be offered to the students of other than B.Sc. (Hons.) course under Choice Based Credit System (CBCS). (E.C. 28.02.2017/07.03.2017)

Core Papers (Credit: 6 each) (14 papers)

STAT-C-101 Descriptive Statistics (Theory + Practical)
STAT-C-102 Calculus
STAT-C-201 Probability and Probability Distributions (Theory + Practical)
STAT-C-202 Algebra (Theory + Practical)
STAT-C-301 Sampling Distributions (Theory + Practical)
STAT-C-302 Survey Sampling and Indian Official Statistics (Theory + Practical)
STAT-C-303 Mathematical Analysis (Theory + Practical)
STAT-C-401 Statistical Inference (Theory + Practical)
STAT-C-402 Linear Models (Theory + Practical)
STAT-C-403 Statistical Quality Control (Theory + Practical)
STAT-C-501 Stochastic Processes and Queuing Theory (Theory + Practical)
STAT-C-502 Statistical Computing Using C/C++ Programming (Theory + Practical)
STAT-C-601 Design of Experiments (Theory + Practical)
STAT-C-602 Multivariate Analysis and Nonparametric Methods (Theory + Practical)

Discipline Specific Elective Papers (Credit: 6 each) (4 papers to be selected)

DSE-1

(A) Time Series Analysis (Theory+ Practical)
or
(B) Demography and Vital Statistics (Theory + Practical)

DSE-2

(A) Operations Research (Theory + Practical)
or
(B) Econometrics (Theory + Practical)

DSE-3

(A) Actuarial Statistics (Theory + Practical)
or
(B) Survival Analysis and Biostatistics (Theory + Practical)

DSE 4

(A) Financial Statistics (Theory + Practical)
or
(B) Project Work (Sixth Semester)

Skill Enhancement Electives (Credit: 2 each) (2 papers to be selected)

1. Statistical Data Analysis Using Software Packages
2. Statistical Data Analysis Using R
3. Statistical Techniques for Research Methods
4. Data Base Management Systems

Generic Elective Papers (GE) (Credit: 6 each) (to be offered to other Departments/Disciplines)

1. Statistical Methods
2. Introductory Probability
3. Basics of Statistical Inference
4. Applied Statistics

25. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding syllabi of Botany, Chemistry and Zoology component of the B.Sc. (Prog.) Life Sciences course under Choice Based Credit System (CBCS). (E.C. 28.02.2017/07.03.2017)

B.SC. PROGRAMME (LIFE SCIENCES) –
BOTANY, CHEMISTRY & ZOOLOGY COMPONENT

Core Courses

Botany

1. Biodiversity (Microbes, Algae, Fungi and Archegoniate)
2. Plant Ecology and Taxonomy
3. Plant Anatomy and Embryology
4. Plant Physiology and Metabolism

Zoology

1. Animal Diversity
2. Comparative Anatomy and Developmental Biology
3. Physiology and Biochemistry
4. Genetics and Evolutionary Biology

Chemistry

1. Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons
2. Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I
3. Conductance, Electrochemistry & Functional Group Organic Chemistry-II
4. Chemistry of s- and p-block elements, States of matter and Chemical Kinetics

Discipline Specific Electives

Botany (Any two)

1. Economic Botany and Biotechnology
2. Cell and Molecular Biology
3. Analytical Techniques in Plant Sciences
4. Bioinformatics
5. Research Methodology
6. Dissertation

Zoology (Any two)

1. Reproductive Biology
2. Wild Life Conservation and Management
3. Biotechnology
4. Immunology
5. Applied Zoology
6. Dissertation

Chemistry (Any two)

1. Applications of Computers in Chemistry
2. Analytical Methods in Chemistry
3. Molecular Modelling & Drug Design
4. Novel Inorganic Solids
5. Polymer Chemistry
6. Research Methodology for Chemistry
7. Green Chemistry
8. Industrial Chemicals & Environment
9. Inorganic Materials of Industrial Importance
10. Instrumental Methods of Analysis
11. Chemistry of d-block elements, Quantum Chemistry and Spectroscopy
12. Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy
13. Molecules of Life
14. Dissertation

Ability Enhancement Compulsory Courses

1. Environmental Sciences
2. English/MIL Communication

Skill Enhancement Courses (Any four)

Botany

1. Bio fertilizers
2. Herbal Technology
3. Nursery and Gardening
4. Floriculture
5. Medicinal Botany
6. Plant Diversity and Human Welfare
7. Ethnobotany
8. Mushroom Culture Technology
9. Intellectual Property Right

Zoology

1. Apiculture
2. Aquarium Fish Keeping
3. Medical Diagnostics

4. Public Health and Hygiene
5. Sericulture

Chemistry

1. IT Skills for Chemists
2. Basic Analytical Chemistry
3. Chemical Technology & Society
4. Chemoinformatics
5. Business Skills for Chemists
6. Intellectual Property Rights
7. Analytical Clinical Biochemistry
8. Green Methods in Chemistry
9. Pharmaceutical Chemistry
10. Chemistry of Cosmetics & Perfumes
11. Pesticide Chemistry
12. Fuel Chemistry

Scheme of Examination

Semester	Course Opted	Course Name	Credits
I	Ability Enhancement Compulsory Course-I	English Communications/ Environmental Science	2
	Core Course Botany - I	Biodiversity (Microbes, Algae, Fungi and Archegoniate)	4
	Core Course Botany – I Practical	Biodiversity - Practical	2
	Core Course Zoology - I	Biodiversity - Animals	4
	Core Course Zoology – I Practical	Biodiversity – Animals Lab	2
	Core Course Chemistry - I	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons	4
	Core Course Chemistry - I Practical	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons - Lab	2
II	Ability Enhancement Compulsory Course-II	English Communications/ Environmental Science	2
	Core Course Botany - II	Plant Ecology and Taxonomy	4
	Core Course Botany – II Practical	Plant Ecology and Taxonomy – Practical	2
	Core Course Zoology - II	Comparative Anatomy and Developmental Biology	4
	Core Course Zoology – II Practical	Comparative Anatomy and Developmental Biology – Practical	2
	Core Course Chemistry - II	Chemical Energetics, Equilibria & Functional Group Organic Chemistry -I	4
	Core Course Chemistry - II Practical	Chemical Energetics, Equilibria & Functional Group Organic Chemistry –I – Lab	2
III	Core Course Botany - III	Anatomy and Embryology of Angiosperms	4

	Core Course Botany – III Practical	Anatomy and Embryology of Angiosperms - Practical	2
	Core Course Zoology - III	Physiology and Biochemistry	4
	Core Course Zoology – III Practical	Physiology and Biochemistry – Practical	2
	Core Course Chemistry - III	Conductance, Electrochemistry & Functional Group Organic Chemistry-II	4
	Core Course Chemistry - III Practical	Conductance, Electrochemistry & Functional Group Organic Chemistry-II - Lab	2
	Skill Enhancement Course – I	SEC – I	2
IV	Core Course Botany - IV	Plant Physiology and Metabolism	4
	Core Course Botany – IV Practical	Plant Physiology and Metabolism – Practical	2
	Core Course Zoology - IV	Genetics and Evolutionary Biology	4
	Core Course Zoology – IV Practical	Genetics and Evolutionary Biology – Practical	2
	Core Course Chemistry - IV	Chemistry of s- and p-block elements, States of matter and Chemical Kinetics	4
	Core Course Chemistry - IV Practical	Chemistry of s- and p-block elements, States of matter and Chemical Kinetics – Lab	2
	Skill Enhancement Course – II	SEC-II	2
V	Discipline Specific Elective Botany – I	DSE Botany I	4
	Discipline Specific Elective Botany – I Practical		2
	Discipline Specific Elective Zoology – I	DSE Zoology I	4
	Discipline Specific Elective Zoology – I Practical		2
	Discipline Specific Elective Chemistry – I	DSE Chemistry I	4
	Discipline Specific Elective Chemistry – I Practical		2
	Skill Enhancement Course – III	SEC-III	2
VI	Discipline Specific Elective Botany – II	DSE Botany II	4
	Discipline Specific Elective Botany – II Practical		2
	Discipline Specific Elective Zoology – II	DSE Zoology II	4
	Discipline Specific Elective Zoology – II Practical		2
	Discipline Specific Elective Chemistry – II	DSE Chemistry II	4
	Discipline Specific Elective Chemistry – II Practical		2
	Skill Enhancement Course – IV	SEC-IV	2
Total Credits			**120**

26. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding syllabus of B.Sc. (Prog.) Mathematical Sciences (Operational Research) under Choice Based Credit System (CBCS). (E.C. 28.02.2017/07.03.2017)

B.SC. (PROGRAMME) MATHEMATICAL SCIENCES (OPERATIONAL RESEARCH)

Sem.	Core Course (DCC) (12)	Ability Enhancement Compulsory Course (AECC) (2)	Skill Enhancement Course (SEC) (4)	Discipline Specific DSE (6)
I	Introduction to Operational Research and Linear Programming **(Theory + Practical)**	**AECC 1** (English/MIL Communication/ Environmental Sciences)		
II	Inventory and Marketing Management **(Theory + Practical)**	**AECC 2** (Environmental Sciences/ English/MIL Communication)		
III	Optimization Techniques (**Theory + Practical)**		**SEC – OR 1** Operational Research Applications	
IV	Network Models and Scheduling Techniques **(Theory + Practical)**		**SEC – OR 2** Project Management	
V			**SEC – OR 3** Portfolio Optimization	**DSE 1** 1) Queuing and Reliability Theory (Theory and Practical) **OR** 2) Quality Management (Theory and Tutorials)
VI			**SEC – OR 4** Business Data Analysis	**DSE 2** 1) Integer Programming and Theory of Games (Theory and Practical) **OR** 2) Logistics and Supply Chain Management (Theory and Tutorials)

STRUCTURE

(a) Six papers of Mathematics are compulsory, one in each semester. There are four courses and two disciplines elective for each discipline.
(b) Six papers each from two of the following three disciplines: Statistics, Operational Research, Computer Science.
(c) Two skill based papers to be chosen from any of the four discipline.

SEMESTER-I

	Maths – I
	OR-I, CS-I
	or CS-I, Stats-I
	or Stats-I, OR-I
Ability Enhancement Course	

SEMESTER-II

	Maths – II
	OR-II, CS-II
	Or CS-II, Stats-II
	Or Stats-II, OR-II
Ability Enhancement Course	

SEMESTER-III

	Maths – III
	OR-III, CS-III
	Or CS-III, Stats-III
	Or Stats-III, OR-III
Skill Enhancement Course	SEC MT-1/SEC OR-1/ SEC CS-1/ SEC ST-1

SEMESTER-IV

	Maths – IV
	OR-IV, CS-IV
	Or CS-IV, Stats-IV
	Or Stats-IV, OR-IV
Ability Enhancement Course-2	SEC MT-2/SEC CS-2/ SEC OR-2/ SEC ST-2

SEMESTER-V

	Maths – DSE-1
	OR, CS, DSE-1
	Or CS, Stats, DSE-1
	Or Stats, OR, DSE-1
Ability Enhancement Course-3	SEC MT-3/SEC CS-3/ SEC OR-3/ SEC ST-3

SEMESTER-VI

	Maths – DSE-2
	OR, CS, DSE-2
	Or CS, Stats, DSE-2
	Or Stats, OR, DSE-2
Ability Enhancement Course-4	SEC MT-4/SEC CS-4/ SEC OR-4/ SEC ST-4

27. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding minor modifications in the sequencing of the papers in the B.A. (Hons.) History and B.A. (Prog.) History courses under Choice Based Credit System (CBCS). (E.C. 28.02.2017/07.03.2017)

B.A. (HONS.) HISTORY

1st Year, Semester 1

A. Core Courses:

1. Paper I: History of India-1
2. Paper II: Social Formations and Cultural Patterns of the Ancient World -I

B. Generic Elective-I (GE-l):

Paper I: Environmental issues in India OR Paper VII: issues in Contemporary World

C. Discipline-Centric Elective (DSE):

-NIL

D. Skill Enhancement Course (SEC):

-NIL

1st Year, Semester 2:

A. Core Courses:

1. Paper III: History of India-II
2. Paper IV: Social Formations and Cultural Patterns of the Medieval World -II

B. Generic Elective-II (GE-2):

Paper IV: Ancient Delhi **OR** Paper II: Research Methodology in History

C. Discipline-Centric Elective (DSE):

-NIL

D. Skill Enhancement Course (SEC):

-NIL

2nd Year, Semester 3

A. Core Courses:

1. Paper V: History of 1ndia-III (c.7 5 0- 1206)
2. Paper VI: Rise of Modern West-I
3. Paper VII: History of India- IV (1206- 1550)

B. Generic Elective-III (GE-3):

1. Paper V: Medieval Delhi

C. Discipline-Centric Elective (DSE):

-NIL

D. Skill Enhancement Course-I (SEC-1):

Paper I: Understanding Heritage **OR** Paper III: Archives and Museums

2nd Year, Semester 4

A. Core Courses:

1. Paper VIII: Rise of Modern West-II
2. Paper IX: History of India-V (c. 1550- 1605)
3. Paper XII: History of India - VII (c 1605 – 1750) [***This paper has been placed wrongly in the chronological sequence in the UGC model syllabus, it should be offered in this semester instead of Paper X: History of India - VI (1750- 1857)]

B. Generic Elective-IV (GE-4):

Paper VI: Modern Delhi. **OR** Paper III: Making of Contemporary India

C. Discipline-Centric Elective (DSE):

-NIL

D. Skill Enhancement Course- II (SEC-2):

Paper II: Art Appreciation (An Introduction to Indian Art) **OR** Paper IV: Understanding Popular Culture

3rd Year, Semester 5

A. Core Courses:

1. Paper XI: History of Modern Europe-I (e. 1780-1939)
2. Paper X: History of India- VI (c. 1750-1857) [This paper has been incorrectly placed in the chronological sequence of paper in the UGC model syllabus, it should be offered in this semester instead of Paper XII: History of India - VII (c.1605-1750)]

B. Generic Elective (GE)

-NIL

C. Discipline-Centric Elective-I (DSE-I):

1. Paper I: History of USA-1 (c.1776-186s) OR Paper III: History of the USSR (c. 1917-1930s) **OR** Paper VI: History of Latin America (c.1500-1960s). [The dates in the course titles have been corrected to match their content].

D. Discipline-Centric Elective-II (DSE-2):

1. Paper VII: History of Southeast Asia-I (the 19th Century) **OR** Paper IX: History of Modern East Asia -I (c.1840-1919)

E. Skill Enhancement Course (SEC):

-NIL

3rd Year, Semester 6

A. Core Courses:

1 . Paper XIII: History of India- VIII (c. 1857- 1950)

2. Paper XIV: History of Modern Europe-II (c. 1780-1939)

B. Generic Elective (GE)

-Nil

C. Discipline-Centric Elective-Ill (DSE-3):

Paper II: History of USA-II (c.1860s-1945) **OR** Paper IV: History of the USSR-II (c.1930s-1964) **OR** Paper V: History of Africa (c. 1500-1960s) [The date in the titles of the first 2 courses have been corrected to match with the course contents].

D. Discipline-Centric Elective-IV (DSE-4):

Paper VIII: History of Southeast Asia-II (the 20lh Century) **OR** Paper X: History of Modem East Asia-II (1868-1945)

E. Skill Enhancement Course (SEC)

-Nil.

B.A. PROGRAMME WITH HISTORY

1st Year, Semester 1

A. Core Courses-Discipline Specific Course (DSC):
Course I: History of India from the Earliest Times to 300 CE

B. Skill Enhancement Course (SEC)
-NIL

C. Discipline Specific Elective (DSE)
-NIL

D. Generic Elective (GE)
-NIL

1st Year, Semester 2

A. Core Courses-Discipline Specific Course (DSC):
Course II: History of India from c. 300 to 1206

B. Skill Enhancement Course (SEC)
-NIL

C. Discipline Specific Elective (DSE)
-NIL

D. Generic Elective (GE)
-NIL

2nd Year, Semester 3

A. Core Courses- Discipline Specific Course (DSC):
Course III: History of India from c.1206- 1707

B. Skill Enhancement Course (SEC)
Course III: Indian History and Culture **OR** Course V: An Introduction to Archaeology **OR** Course VII: Orality and Oral Culture in India

C. Discipline Specific Elective (DSE)
-NIL

D. Generic Elective (GE)
-NIL

2nd Year, Semester 4

A. Core Courses-Discipline Specific Course (DSC):
Course IV: History of India from c. 1707-1950

B. Skill Enhancement Course (SEC)
-Nil.

C. Discipline Specific Elective (DSE)
-NIL

D. Generic Elective (GE)
-Nil

3rd Year, Semester 5

A. Core Courses-Discipline Specific Course (DSC):
-NIL

B. Skill Enhancement Course (SEC)
Course I: Historical Tourism: Theory and Practice **OR** Course II: Museums and Archives **OR** Course VI: Documentation and Visual Culture

C. Discipline Specific Elective (DSE)
Course IV: Patterns of Capitalism in Europe (c. 16th Century to early 20th Century) **OR** Course V: Some Aspects of Society and Economy in Modern Europe (c. 15th to 18th Century) **OR** Course VI: Political History of Modern Europe (c. 15th to 18th Centuries)

D. Generic Electives (GE)
Course I: Women's Studies in India **OR** Course III: Some Perspectives on Women's Rights in India **OR** Course IV: Gender and Education in India

3rd Year, Semester 6

A. Core Courses-Discipline Specific Course (DSC):
-NIL

B. Skill Enhancement Course (SEC)
-NIL

C. Discipline Specific Elective (DSE)
Course I: Patterns of Colonialism in the World (c. 15th to 19th Centuries) **OR** Course II: National Liberation Movements in the Twentieth Century **OR** Course III: Some Aspects of European History (1780-1945).

D. Generic Elective (GE)
Course V: History of Indian Journalism (colonial and post-colonial period) **OR** Course VI: Cultures in the Indian Subcontinent.

28. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding introduction of the following B.Voc. Courses. (E.C. 28.02.2017/07.03.2017)

S.No.	Name of the Course
1	B.Voc. – Health Care Management
2	B.Voc.– Retail Management and IT
3	B.Voc. – Printing Technology
4	B.Voc. – Web Designing

SCHEME OF EXAMINATION

SEMESTER SYSTEM

Sem I & II
Sem III & IV
Sem V & VI

Bachelor of Vocation (B.Voc.) is launched under the scheme of University Grants Commission on skill development based higher education leading to Bachelor of Vocation(B. Voc.) Degree with multiple exits as Diploma/Advanced Diploma under the National Skill Qualification framework. The B.Voc. programme incorporate specific job roles and their National Occupational Standards along broad based general education.

1. **B. VOC. PROGRAMME** :
   The B. Voc. Programme has been designed as per National Skill Qualification Framework emphasizing on skill based education.

2. **DURATION OF COURSE:** The duration of course is 3 Years integrated course with 3 exit points.

Award	Duration	Core Level / Responding / NSQF
Diploma	1 Year	5
Advance Diploma	2 Year	6
B.VOC Degree	3 Year	7

Note:
1. After successful completion of second semester (1st Year) a Diploma will be awarded to the candidate.
2. After successful completion of fourth semester (2nd Year) an Advance Diploma will be awarded to the candidate.
3. After successful completion of sixth semester (3rd Year) B.Voc. Degree will be awarded to the candidate

3. **ELIGIBILITY CRITERIA FOR ADMISSION:**
   12th Class or equivalent in any stream.

4. **TOTAL NUMBER OF SEATS:**
   (i) B.Voc. (Healthcare Management) : 50
   (ii) B.Voc. (Retail Management & IT) : 50
   (iii) B.Voc. (Printing Technology) : 50
   (iv) B.Voc. (Web Designing): 50

5. **RESERVATION OF SEATS:**
   As per rules of University of Delhi.

6. **COURSE FEE :**
   Student fee should be decided as per the prevalent mechanism for fee fixation for aided courses in the university/college.

7. **ADMISSION PROCESS:**
   Based on Merit (As per University rule).

8. CURRICULUM:

(i) GENERIC COMPONENT:

The general education component should adhere to the normal university standards. It should emphasise and offer courses which provide holistic development. However, it should not exceed 40% of the total curriculum.

(ii) SKILL COMPONENT:

National Skill Development Corporation (NSDC) & Sector Skill Council (SSC) will share the curriculum of the identified job roles which will be in alignment to Qualification Packs and National Occupational Standards.

The university/college should develop the curriculum in consultation with industry. The industry representatives should be an integral part of the academic bodies of the university/college. While doing so, they should work towards aligning the skills components of the curriculum with the NOSs developed by the respective Sector Skill Councils.

In case NOS is not available for a specific area / job role, the university/college should get the curriculum for this developed in consultation with industry experts.

9. FACULTY:

The university/college should use its regular faculty for the conduct of general education component and also for the skills components, if existing. Additionally, they may hire faculty on contractual basis and guest faculty in the core trades only as per UGC norms.

NSDC will coordinate the availability of the services of the trained skills faculty, subject to the requirement of institution, from its funded training partners at UGC approved remuneration as per guidelines of Community Colleges and NSDC funded training partner.

10. CREDIT CALCULATION:

The following formula should be used for conversion of time into credit hours.

a) One Credit would mean equivalent of 14 to 15 periods of 60 minutes each, for theory, workshops/labs and tutorials;

b) For internship/field work, the credit weightage for equivalent hours shall be 50% of that for lectures/workshops;

c) For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study should be 50% or less of that for lectures/workshops.

NSQF Level	Skill Component Credits	General Education Credits	Total Credits (Cumulative)	Normal calendar duration	Exit Points / Awards
5 (Year 1)	36	24	60	Two semesters	Diploma
6 (Year 2)	36	24	120	Four Semesters	Advanced Diploma
7 (Year 3)	36	24	180	Six Semesters	Degree
Total	108	72			

INTERNAL ASSESSMENT:

- Generic Component: As per University guidelines (will be done by college).
- Skill Component: As per NSDC - SSC guidelines (will be done by SSCs)

11. EXAMINATION

(I) GENERAL EDUCATION COMPONENT (GEC) :

The assessment for the General Education Component (GEC) should be done by the University of Delhi as per their prevailing standards and procedures.

The course of study of B.Voc. shall be divided in to six semesters and university examination will be held at the end of every semester in the months of November/December (for semester I, III & V) and May/June (for semester II, IV & VI) or as fixed by the University of Delhi.

The **medium of instruction** and examination will be **English/Hindi,** except for the language subjects whose medium of instruction and examination will be that of the language subject.

The minimum number of marks required to pass the examination in each Part shall be 35% in each subject, in theory paper, practical examination and internal assessment separately.

Internal assessment and its Components: Internal assessment, in each subject, shall be 25% of the total marks in each paper and shall be uniformly applicable to all the Subjects/Papers. The three Components for Internal Assessment shall be as follows (to be divided equally, as per the credit of the paper:

(i)	Attendance:	20%	% of the Total Marks of the internal Assessment
(ii)	Written Assignment/Project :	40%	
(iii)	Mid-Semester Tests/Internal Examination	40%	

Papers having practical/viva, the marks of theory and practical/viva will be reduced equally percentage wise, to make room for 20% internal assessment (as per (b) above).

The Successful candidates shall be classified on the basis of aggregate marks secured

a) 75% or more with Distinction.
b) 60% or more in the First division.
c) 50% or more but less than 60% in the Second division.
d) 40% to below 50% in the Third division.

Attendance and Other Requirements: Every candidate will be required to attend a minimum of 66.6% lectures delivered to that class in each paper as well as 75% of the laboratory work, seminars etc. separately. Provided that a deficiency in attendance may be condoned for special reasons, as per the relevant ordinances on the subject.

Re-evaluation of scripts: Re-evaluation of scripts as per University of Delhi Rules.

(II) ASSESSMENT OF SKILL EDUCATION COMPONENT (SEC):

- NSDC will ensure that post training, the assessment and certification of vocational component is done by NSDC approved Sector Skill Councils. The assessment will be done by Sector Skill Councils (SSC)/Industry Partner through its affiliated Assessment Bodies who have SSC trained certified assessors.

- The university may like to consult the respective Sector Skill Council for designing the examination and assessment pattern for the skill development components. The university may also consider using the designated assessors of Sector Skill Councils/industry associations for the conduct of practical assessment.

B.VOC – (HEALTHCARE MANAGEMENT)

Table of Contents

	SEMESTER-1			Credits
1.	General Education Component (GEC)	GEC 1.1	Environmental Science/English Communication	4
2.		GEC1.2	Computer Fundamentals	4
3		GEC 1.3	Soft Skills	4
4	Skill Component (SEC)	SEC 1.1	Communication in Healthcare	3
5		SEC 1.2	Human body – Basics - Anatomy and Physiology	4
6		SEC 1.3	Introduction to Hospital Industry	3
7		SEC 1.4	Medical Terminology – 1	4
8		SEC 1.5	Medical Software Applications -1	4
	SEMESTER – 2			
1	General Education Component	GEC 2.1	English Communication / Environmental Science	4
2		GEC 2.2	Hindi	4
3	(GEC)	GEC 2.3	Making Decisions	4
4	Skill Component (SEC)	SEC 2.1	Medical Terminology – 2	3
5		SEC 2.2	Medical Software Application – 2	3
6		SEC 2.3	Planning of hospital functions	4
7		SEC 2.4	Front office operations-1	5
8		SEC 2.5	Project and Internship	3
	SEMESTER – 3			
1	General Education Component (GEC)	GEC 3.1	English	5+1
2		GEC 3.2	Fundamentals of Accounting	5+1
3	Skill Component (SEC)	SEC 3.1	Patient behavior and Psychology	3
4		SEC 3.2	Medical Terminology – 3	3
5		SEC 3.3	Medical Software Application – 3	3
7		SEC 3.4	Front office operations - 2	5
8		SEC 3.5	Introduction to Finance and Credit Management in healthcare	4

SEMESTER – 4				
1	General Education Component (GEC)	GEC 4.1	Fundamentals of Management	5+1
2		GEC 4.2	Self and Personal Growth	5+1
3	Skill Component (SEC)	SEC 4.1	Quality in healthcare- Service and Medical Quality	4
4		SEC 4.2	TPA Operations	3
5		SEC 4.3	Cash Management	3
6		SEC 4.4	Hospital Policies	5
7		SEC 4.5	Project & Internship	3
SEMESTER 5				
1	General Education Component (GEC)	GEC 5.1	Basic Statistics and Probability	4+2
2		GEC 5.2	Human Resource Management	5+1
4	Skill Component (SEC)	SEC 5.1	Bio Medical Waste Management and Radiation Safety.	4
3		SEC 5.2	General Safety codes, Fire Safety and Disaster Management in Hospitals.	4
4		SEC 5.3	Hospital Infection Control	3
5		SEC 5.4	Nursing administration	4
6		SEC 5.5	Branding and Promotion in Hospital	3
SEMESTER – 6				
1	General Education Component (GEC)	GEC 6.1	Marketing Management	5+1
2		GEC 6.2	Entrepreneurship and Small Business	5+1
3	Skill Component (SEC)	SEC 6.1	Management of Non Clinical departments-Support and Utility Services.	4
4		SEC 6.2	Legal & Ethical issues in Healthcare	4
5		SEC 6.3	Hospital Engineering and Bio Medical Engineering	4
6		SEC 6.4	Crisis Management	3
		SEC 6.5	Project & Internship	3

General Education Component Papers for Healthcare Management

Semester	Paper Code	Paper Title	Credits
1	GEC 1.1	Environmental Science / English Communication	4
	GEC 1.2	Computer Fundamentals	4
	GEC1.3	Soft Skills	4
2	GEC 2.1	English Communication / Environmental Science	4
	GEC 2.2	Hindi	4

	GEC 2.3	Making Decisions	4
3	GEC 3.1	English	6
	GEC 3.2	Fundamentals of Accounting	6
4	GEC 4.1	Fundamentals of Management	6
	GEC 4.2	Self and Personal Growth	6
5	GEC 5.1	Basic Statistics and Probability	6
	GEC 5.2	Human Resource Management	6
6	GEC 6.1	Marketing Management	6
	GEC 6.2	Entrepreneurship and Small Business	6

B.VOC. (RETAIL MANAGEMENT & IT)

Table of Contents

Course Structure

	SEMESTER-1			Credits
1.	General Education Component (GEC)	GEC 1.1 Environmental Science/English Communication		4
2.		GEC 1.2 Computer Fundamentals		4
3.		GEC 1.3 Soft Skills		4
			General Component Total	**12**
4	Skill Component (SEC)	SEC 1.1 Introduction to Retail and Store Operations		1
5	Theory	SEC 1.2 Consumer Buying Behavior and Retail Sales		3
6		SEC1.3 Customer Service and Customer Relationship Management		3
7		SEC 1.4 Health, Safety & Security		1
8		SEC 1.5 Team and Organizational Dynamics		1
		Total		**9**
	Skill Component (PRACTICAL-RETAIL LAB)	SEC 1.6	Understanding Consumer Buying Behavior and Retail Sales	1
		SEC 1.7	Customer Service and Customer Relationship Management	1
			Total	**2**
			Internship Project	**7**
			Skill Component Total	**18**
			Semester-1 Total	**30**

	SEMESTER – 2			
1	General Education Component (GEC)	GEC 2.1	English Communication/ Environmental Science	4
2		GEC2.2	Hindi / MIL	4
3		GEC2.3	Making Decisions	4
			General Component Total	**12**
4	Skill Component (SEC) Theory	SEC 2.1	Store Display and Visual Merchandising	3
5	Skill Component (SEC) Theory	SEC 2.2	Sales Management	3
6		SEC 2.3	Organization and Team Dynamics	2
7		SEC 2.4	Customer Experience Management	1
8		**Total**		**9**

	Skill Component (PRACTICAL-RETAIL LAB)	**Application of Theory Concepts in Retail lab (Role Play/Workbook/ Viva Voce)**		**Credits**
		SEC 2.5	Store Display and Visual Merchandising	1
		SEC 2.6	Customer Experience Management	1
			Total	**2**
			Internship Project	**7**
			Skill Component Total	**18**
			Semester-2 Total	**30**
			1st Year Total	**60**
	SEMESTER – 3			
1	General Education Component (GEC)	GEC 3.1	English	5+1
2		GEC 3.2	Fundamentals of Accounting	5+1
			General Component Total	**12**
3	Skill Component (SEC) THEORY	SEC 3.1 Retail Store Operations and Profitability Management		5
4		SEC 3.2 Customer Experience Management		5
		Application of Theory Concepts in Retail lab (Role Play/Workbook/ Viva Voce)		
	Skill Component (PRACTICAL-RETAIL LAB)	SEC 3.3 Retail Store Operations and Profitability Management		2
		Internship Project		4
			Skill Component Total	**16**
			Semester 3 Total	**28**
	SEMESTER – 4			
	General Education Component (GEC)	GEC 4.1	Fundamentals of Management	5+1

		GEC 4.2 Self and Personal Growth	5+1
		General Component Total	**12**
	Skill Component (SEC)	SEC 4.1 Understanding Leadership	4
		SEC 4.2 Team and Organizational Dynamics	4
	Skill Component (PRACTICAL-RETAIL LAB	SEC 4.3 Application of Leadership Principles (Situational Leadership Styles)	2
		Internship Project	10
		Skill Component Total	**20**
		Semester 4 Total	**32**
		2nd Year Total	**60**
	SEMESTER - 5		
1	General Education Component (GEC)	GEC 5.1 Basic Statistics and Probability	6
2		GEC 5.2 Human Resource Management	6
		General Component Total	**12**
3	Skill Component (SEC) THEORY	SEC 5.1 Retail Stores Operations and Sales	4
4		SEC 5.2 Process Compliance, Safety and Security	4
	Skill Component (PRACTICAL-RETAIL LAB	SEC 5.3 Retail Stores Operations and Sales (LAB)	2
		Internship Project	4
		Skill Component Total	**14**
		Semester Total	**26**
	SEMESTER – 6		
1	General Education Component (GEC)	GEC 6.1 Marketing Management	6
2		GEC 6.2 Entrepreneurship and Small Business	6
3		**General Component Total**	**12**
	Skill Component (SEC) THEORY	SEC 6.1 People, Process and Profitability Management	5
	Skill Component (PRACTICAL-RETAIL LAB)	SEC 6.2 Profitability Management	2
		Internship Project	15
		Skill Component Total	**22**
		Semester Total	**34**
		3rd Year Total	**60**

General Education Component Papers for Retail Management & IT

Semester	Paper Code	Paper Title	Credits
1	GEC 1.1	Environmental Science / English Communication	4
	GEC 1.2	Computer Fundamentals	4

	GEC1.3	Soft Skills	4
2	GEC 2.1	English Communication / Environmental Science	4
	GEC 2.2	Hindi	4
	GEC 2.3	Making Decisions	4
3	GEC 3.1	English	5+1
	GEC 3.2	Fundamentals of Accounting	5+1
4	GEC 4.1	Fundamentals of Management	5+1
	GEC 4.2	Self & Personal Growth	5+1
5	GEC 5.1	Basic Statistics and Probability	5+1
	GEC 5.2	Human Resource Management	5+1
6	GEC 6.1	Marketing Management	5+1
	GEC 6.2	Entrepreneurship and Small Business	5+1

B. VOC. (PRINTING TECHNOLOGY)

SEMESTER - I

Paper Code	Paper Title	Credit	Credit
GEC1.1	English Communication	GEC	4
GEC1.2	Computer Fundamentals		4
GEC1.3	Computer Applications in Communication and Media Design		4
PT1.1	Fundamentals of Printing Technology	SEC	4
PT1.1L	Lab1-: Fundamentals of Printing Technology		2
PT1.2	Reproduction Techniques and Printing Process		4
PT1.2L	Lab-2: Reproduction Techniques and Printing Process		4
PT1.3	Ms-Office and E-Publishing		2
PT1.3L	Lab-3: Ms-Office and E-Publishing		2
	Total		**30**

SEMESTER – II

Paper Code	Paper Title		Credit
GEC2.1	Environmental Science	GEC	4
GEC2.2	Hindi (**कार्यालय हिन्दी**) / MIL		4
GEC2.3	Soft Skills		4
PT2.1	Desk Top Publishing	SEC	4
PT2.1L	Lab-1: Desk Top Publishing		4

PT2.2	Typography and Typesetting		4
PT2.2L	Lab-2: Typography and Typesetting		4
PT2.3	Printing Technology Project –I		2
	Total		**30**

SEMESTER – III

Paper Code	**Paper Title**		**Credit**
GEC 3.1	English	GEC	6
GEC 3.2	Graphic Designing and Visual Image		6
PT3.1	Flexography Printing	SEC	2
PT3.1L	Lab-1: Flexography Printing		1
PT3.2	Print Production Using Graphic Design		3
PT3.2L	Lab-2: Print Production Using Graphic Design		4
PT3.3	Image Carrier Generation		4
PT3.3L	Lab-3: Image Carrier Generation		4
	Total		**30**

SEMESTER – IV

Paper Code	**Paper Title**		**Credit**
GEC 4.1	Basic Statistics and Probability	GEC	6
GEC 4.2	Print Media Production		6
PT4.1	Digital Printing	SEC	2
PT4.1L	Lab-1: Digital Printing		2
PT4.2	Book Publishing, Computer Paper and Security Printing		2
PT4.2L	Lab-2: Book Publishing, Computer Paper and Security Printing		2
PT4.3	Planography Printing Process		4
PT4.3L	Lab-3: Planography Printing Process		4
PT4.4	Printing Technology Project –II		2
	Total		**30**

SEMESTER – V

Paper Code	**Paper Title**		**Credit**
GEC 5.1	Print Journalism and Production	GEC	6
GEC 5.2	Media Industry & Management-1		6
PT5.1	Printing Materials	SEC	2
PT5.2	Gravure printing process		4
PT5.2L	Lab-1: Gravure printing process		4
PT5.3	Printing Science (Paper & Ink)		4
PT5.3L	Lab-2: Printing Science (Paper & Ink)		4
	Total		**30**

SEMESTER – VI

Paper Code	Paper Title		Credit
GEC 6.1	Industrial/Organizational Psychology	GEC	6
GEC 6.2	Entrepreneurship and Small Business		6
PT6.1	Print Industry Management	SEC	3
PT6.2	Design & Planning For Print Production		3
PT6.2L	Print Finishing and Quality Control		4
PT6.3	Lab-1: Print Finishing and Quality Control		4
PT6.3L	Internship Project		4
	Total		**30**

B. VOC. (WEB DESIGNING)

SEMESTER – I

Subject Code	Title of Subject	Paper Types	Credits
GEC1.1	English Communication	GEC	4
GEC1.2	Computer Fundamentals		4
GEC1.3	Computer Applications in Communication And Media Design		4
WD 1.1	Fundamentals of Mathematics & Statistics	SEC	4
WD 1.2	Computer Programming Using C		3
WD1.3	Web Development (HTML & CSS)		3
WD 1.4	Databases		2
WD1.5	Lab-1: Computer Programming Using C		2
WD1.6	Lab-3: Web Development (HTML & CSS)		2
WD1.7	Lab-4: Databases		2
	Total		30

SEMESTER – II

Subject Code	Title of Subject	Paper Types	Credits
GEC2.1	Environmental Sciences	GEC	4
GEC2.2	Internet and Java Programming		4
GEC2.3	Soft Skills		4
WD 2.1	Java Script	SEC	4
WD 2.2	Adobe Photoshop & Illustrator		4
WD 2.3	Lab-1: Java Script		4
WD 2.4	Lab-2: Adobe Photoshop & Illustrator		4
WD 2.5	Lab-3: Web Designing Project		2
	Total		**30**

SEMESTER – III

Subject Code	Title of Subject	Paper Types	Credits
GEC 3.1	Hindi (**कार्यालय हिन्दी**)	GEC	4
GEC 3.2	Statistical Data Analysis Using R		4
GEC 3.3	Life Skills Education		4
WD 3.1	Programming Using C++	SEC	4
WD 3.2	PHP & MY SQL		4
WD 3.3	Windows & Linux		4
WD 3.4	Lab-2: Programming Using C++		2
WD 3.5	Lab- 2: PHP & MY SQL		2
WD 3.6	Lab-3: Windows & Linux		2
	Total		**30**

SEMESTER – IV

Subject Code	Title of Subject	Paper Types	Hours
GEC4.1	Management Information System	GEC	4
GEC4.2	Cyber Crime and Law		4
GEC4.3	Effective Decision Making		4
WD 4.1	Programming with Python	SEC	4
WD 4.2	Responsive Web Development		4
WD 4.3	PHP Advance		4
WD 4.4	Lab-1: Programming with Python		2
WD 4.5	Lab-2: Responsive Web Development		2
WD 4.6	Lab-3: PHP Advance		2
	Total		**30**

SEMESTER – V

Subject Code	Title of Subject	Paper Types	Hours
GEC5.1	E-Commerce	GEC	4
GEC5.2	Geographical Information System		4
GEC 5.3	Quality Management		4
WD 5.1	Software Engineering	SEC	4
WD 5.2	Search Engine Optimisation&Digital Marketing		4
WD 5.3	Core Java Programming		4
WD 5.4	Lab-1: Software Engineering		2
WD 5.5	Lab-2: Search Engine Optimisation & Digital Marketing		2
WD 5.6	Lab-3: Core Java Programming		2
	Total		**30**

SEMESTER – VI

Subject Code	Title of Subject	Paper Types	Credits
GEC6.1	Communication Competency	GEC	4
GEC6.2	Effective Leadership		4
GEC 6.3	Entrepreneurship		4
WD 6.1	Android Technology	SEC	4
WD 6.2	Introduction to Data Science		4
WD 6.3	Lab 1: Android Technology		3
WD 6.4	Lab-2: Introduction to Data Science		3
WD 6.5	Internship Project		4
	Total		**30**

29. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding introduction of the B.Voc. (Banking & Finance) and B.Voc. (Software Development) Course. (E.C. 28.02.2017/07.03.2017)

SCHEME OF EXAMINATION

1. **Eligibility Criteria for Admission:** 12th Class or equivalent in any stream.
2. **Total number of Seats:**
   (i) B.Voc. (Banking & Insurance) : 50
   (ii) B.Voc. (Software Development) : 50
3. **Reservation of Seats:** As per rules of University of Delhi.
4. **Course Fee:** Students fee should be decided as per the prevalent mechanism for fee fixation for aided courses in the University/College.
5. **Admission Process:** Based on Merit (as per University Rule)
6. **Curriculum:**

(i) Generic Component:

The general education component should adhere to the normal University standards. It should emphasize and offer courses which provide holistic development. However, it should not exceed 40% of the total curriculum.

(ii) Skill Component:

- **NSDC – SSCs will share the curriculum of the identified job roles which will in alignment to Qualification Packs and National Occupational Standards.**
- The University/College should develop the curriculum in consultation with industry. The industry representatives should be an integral part of the academic bodies of the University/College. While doing so, they should work towards aligning the skills components of the curriculum with the NOSs developed by the respective Sector Skill Councils.
- In case NOS is not available for a specific area/job role, the University/College should get the curriculum for this developed in consultation with industry experts.

7. **Faculty**:
    - The University/College should use its regular faculty for the conduct of general education component and also for the skills components, if existing. Additionally, they may hire faculty on contractual basis and guest faculty in the core trades only as per UGC norms.

Existing Faculty	Per Lecture ₹500/-
Visiting/Guest Faculty	Per Lecture ₹2,000/-

    - NSDC will coordinate the availability of the services of the trained skilled Faculty, subject to the requirement of institution, from its funded training partners at UGC approved remuneration as per guidelines of Community Colleges and NSDC funded training partner.

8. **Credit Calculation:** *The following formula should be used for conversion of time into credit hours.*
    a) One Credit would mean equivalent of 15 periods of 60 minutes each, for theory, Workshops/Labs and tutorials;
    b) For Internship/Field Work, the credit weightage for equivalent hours shall be 50% of that for Lectures/Workshops;
    c) For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study should be 50% or less of that for Lectures/Workshops;

    The suggested credits for each of the years are as follows:

NSQF Level	Skill Component Credits	General Education Credits	Normal Calendar Duration	Exit Points/ Awards
5 (Year 1)	36	24	Two Semesters	Diploma
6 (Year 2)	36	24	Four Semesters	Advanced Diploma
7 (Year 3)	36	24	Six Semesters	B.Voc.
Total	**108**	**72**		

9. **Internal Assessment**
    - **Generic Component:** As per University guidelines (will be done by College)
    - **Skill Component:** As per NSDC – SSC guidelines (will be done by SSCs)

10. **Examination**
    (i) The assessment for the general education component should be done by the University as per their prevailing standards and procedures.
    (ii) **Assessment of Skill Component:**
    - NSDC will ensure that post training, the assessment and certification of vocational component is done by NSDC approved Sector Skill Councils. The assessment will be done by Sector Skill Councils (SSC) through its affiliated Assessment Bodies who have SSC trained certified assessors.
    - The University may like to consult the respective sector Skill Council for designing the examination and assessment pattern for the skill development components. The University may also consider using the designated assessors of Sector Skill Councils/Industry associations for the conduct of practical assessment.

11. **Award of Certificate**: The Certificate regarding skill component will be issued by the Sector Skill Council. This certificate will be a secured Certificate and could be jointly be issued by the Sector Skill Council (SSC) and Awarding Authority i.e., University/College concerned. This format of Joint Certification has been standardized by NSDC. However, if any University/College wishes not to issue a joint Certificate, the same will be issued solely by the Sector Skill Council.

12. **Placements**
NSDC – SSCs will facilitate placements for at least 70% of the SSC Certified candidates from UGC system.

B.VOC. (BANKING & INSURANCE)

SKILL COMPONENT

Code	Subject	Course Type	Credits Th+Pr
SEMESTER – 1			
SEC 1.1	Fundamentals of Accounting	Skill Component	4 + 2
SEC 1.2	Fundamentals of Finance	Skill Component	4 + 2
SEC 1.3	Financial Services	Skill Component	4 + 2
SEMESTER – 2			
SEC 2.1	Fundamentals of Insurance	Skill Component	4 + 2
SEC 2.2	Basics of Banking	Skill Component	4 + 2
SEC 2.3	Project – I	Skill Component	6
SEMESTER – 3			
SEC 3.1	Insurance Laws	Skill Component	4 + 2
SEC 3.2	Micro Finance	Skill Component	4 + 2
SEC 3.3	Rural Banking	Skill Component	4 + 2
SEMESTER – 4			
SEC 4.1	Principles of Life Insurance	Skill Component	4 + 2
SEC 4.2	Mutual Funds	Core Discipline	4 + 2
SEC 4.3	Project – II	Skill Component	6
SEMESTER – 5			
SEC 5.1	Rural, Social and Micro Insurance	Skill Component	4 + 2
SEC 5.2	Non-Life Insurance	Skill Component	4 + 2
SEC 5.3	Retail Banking	Skill Component	4 + 2
SEMESTER – 6			
SEC 6.1	Insurance Marketing and Distribution	Skill Component	4 + 2
SEC 6.2	Business/Commercial Banking	Skill Component	4 + 2
SEC 6.3	Internship Work	Skill Component	6

GENERIC COMPONENT

SEMESTER – 1		Credits	Skill Acquired	Department
GEC 1.1	English Communication (AECC)	4	Communication Skill (English/MIL)	English
GEC 1.2	Computer Fundamentals (B.A. (P) Computer Application)	4	Basic Computer Skill	Computer Science
GEC 1.3	Financial Accounting (B.Com (P) CBCS)	4	Accounting Skills	Commerce
SEMESTER – 2				
GEC 2.1	Environmental Studies (AECC)	4	Environment Awareness	Environmental Science
GEC 2.2	Building Mathematical Ability (FYUP)	4	Basic Mathematics	Commerce/Management/ Computer Science
GEC 2.3	Business Communication (B.Com (P) CBCS)	4	Communication Skill (English), Personality Development	Commerce
SEMESTER - 3				
GEC 3.1	Hindi/MIL (AECC, B.A./B.Com)	4	Communication Skill (Hindi)	Hindi
GEC 3.2	Statistical Data Analysis Using Software Packages (AECC, B.Sc. Statistics)	4	Data Analysis Skill	Statistics
GEC 3.3	Principles of Micro Economics (B.Com (P) CBCS)	4	Basic Economics	Commerce
SEMESTER – 4				
GEC 4.1	Indian Economy (B.Com (P) CBCS)	4	Fiscal and Monetary Policies	Commerce
GEC 4.2	Marketing & Personal Selling	4	Selling Skill	Commerce
GEC 4.3	Quantitative Techniques (AECC, Operations Research)	4	Management Skill	Commerce
SEMESTER - 5				
GEC 5.1	Organizational Behaviour (B.Com (P) CBCS)	4	Personality Development	Commerce
GEC 5.2	Business Laws	4	Knowledge of Business Laws	Commerce
GEC 5.3	Business Data Analysis (AECC, Operations Research)	4	Data Analysis	Mathematics/Statistics
SEMESTER – 6				
GEC 6.1	Effective Decision Making (AECC, B.A. (Hons) Psychology)	4	Decision Making	Psychology
GEC 6.2	E-Commerce & E-Marketing (AECC, B.Com (H))	4	Emerging Area	Commerce
GEC 6.3	Entrepreneurship (AECC, B.A. Business Economics)	4	Entrepreneurship Skill	Management/Commerce

B.VOC. (SOFTWARE DEVELOPMENT)

GENERIC COMPONENT

SEMESTER – 1		Credits	Skill Acquired	Department
GEC 1.1	English Communication (AECC)	4	Communication Skill (English/MIL)	English
GEC 1.2	Computer Fundamentals (Computer Application B.A.(P))	4	Basic Computer Skill	Computer Science
GEC 1.3	Soft Skill (B.A.(H) English)	4	Personality Development	English
SEMESTER – 2				
GEC 2.1	Environmental Studies (AECC)	4	Environment Awareness	Environmental Science
GEC 2.2	Internet Technology (Computer Application B.A.(P))	4	Information Management Skill	Computer Science
GEC 2.3	Business Communication (B.Com (P) CBCS)	4	Communication Skill (English), Personality Development	Commerce
SEMESTER - 3				
GEC 3.1	Hindi/MIL (AECC, B.A./B.Com)	4	Communication Skill (Hindi)	Hindi
GEC 3.2	Statistical Data Analysis Using Software Packages (AECC, B.Sc. Statistics)	4	Data Analysis Skill	Statistics
GEC 3.3	Life Skills (AECC, B.Sc. Home Science)	4	Soft Skill	Psychology
SEMESTER - 4				
GEC 4.1	Management Information System	4	Writing Skill (English)	Commerce/ Computer Science
GEC 4.2	Cyber Crime and laws (AECC, B.Com)	4	Cyber Awareness	Computer Science/Commerce
GEC 4.3	Quantitative Techniques (AECC, Operations Research)	4	Management Skill	Commerce
SEMESTER - 5				
GEC 5.1	Organizational Behaviour (B.Com (P) CBCS)	4	Personality Development	Commerce
GEC 5.2	Geographical Information System (AECC, B.A. Geography)	4	Emerging Application	Computer Science
GEC 5.3	Programming in Robotics	4	Emerging Application	Computer Science
SEMESTER – 6				
GEC 6.1	Effective Decision Making (AECC, B.A. (Hons) Psychology)	4	Decision Making	Psychology
GEC 6.2	E-Commerce & E-Marketing	4	Emerging Application	Commerce
GEC 6.3	Entrepreneurship (AECC, B.A. Business Economics)	4	Entrepreneurship Skill	Management/ Commerce

SKILL COMPONENT

Semester – 1		Credits (Th+Lab)
SEC 1.1	Fundamentals of Mathematics and Statistics	4 + 0
SEC 1.2	Programming Skills using C	4 + 3
SEC 1.3	Desktop Publishing	4 + 3
Semester – 2		
SEC 2.1	C++ Programming Skills	4 + 3
SEC 2.2	Data Structures	4 + 3
SEC 2.3	Project I	4
Semester – 3		
SEC 3.1	Aptitude & Logical Reasoning	4 + 0
SEC 3.2	Core Java Programming	4 + 3
SEC 3.3	Operating System Concepts	4 + 3
Semester – 4		
SEC 4.1	Networking Fundamentals	4 + 3
SEC 4.2	Web Application and Development	4 + 3
SEC 4.3	Project – II	4
Semester – 5		
SEC 5.1	Software Engineering	4 + 0
SEC 5.2	Python Programming	4 + 3
SEC 5.3	Database Management Skills	4 + 3
Semester – 6		
SEC 6.1	Introduction to Data Science	4 + 3
SEC 6.2	Mobile Application Development	4 + 3
SEC 6.3	Industrial Training	4

30. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding Syllabus of Compulsory Test in Hindi. (E.C. 28.02.2017/07.03.2017)

पाठ्यक्रम

अनिवार्य हिंदी परीक्षा

सेमेस्टर -1

वार्तालाप तथा देवनागरी लिपि

समय : 3 घंटे **पूर्णांक : 100**

(क) वार्तालाप (प्रारंभिक स्तर) **20**

1. स्वपरिचय
2. मेरा परिवार
3. मेरा दैनिक कार्यक्रम
9. चिड़ियाघर
10. भारतीय भोजन
11. हिंदी सिनेमा

4. दुकान में (सब्जी/फल की दुकान)
5. टेलीफोन/मोबाइल पर बातचीत
6. डाकघर/बैंक
7. रेलवे स्टेशन/मैट्रो/यातायात के अन्य साधन
8. अस्पताल
12. प्रादेशिक पर्व
13. भारतीय मौसम
14. छात्रावास के अनुभव
15. महाविद्यालय का समारोह

(ख) देवनागरी लिपि : विकास एवं विशेषताएँ **30**

हिंदी वर्ण-माला- स्वर, व्यंजन
संयुक्त व्यंजन एवं व्यंजन गुच्छ
अनुस्वार, अनुनासिक
विदेशी ध्वनियों का देवनागरी लिप्यंतरण
हिंदी विराम चिह्न

(ग) हिंदी का व्यावहारिक व्याकरण (प्रारंभिक स्तर) **30**

हिंदी संज्ञा शब्द- लिंग ज्ञान, वचन ज्ञान
सर्वनाम
विशेषण
क्रिया- सामान्य क्रिया, संयुक्त क्रिया,
आज्ञार्थक, इच्छार्थक, प्रेरणार्थक
क्रियाएँ, क्रियाओं का काल संबंधी ज्ञान
कारक चिह्न - संज्ञा एवं सर्वनाम के कारकीय रूप

(घ) हिंदी की आधारभूत शब्दावली (संलग्नक-1) 100 शब्दों की सूची-अंग्रेजी पर्याय सहित **20**

सेमेस्टर -2

व्यावहारिक व्याकरण तथा रचना

समय- 3 घंटे **पूर्णांक-100**

(क) हिंदी का व्यावहारिक व्याकरण (प्रारंभिक स्तर) **20**

1. क्रियाविशेषण
2. योजक
3. विस्मयादिबोधक
4. शब्द विचार एवं शब्द शुद्धि : उपसर्ग एवं प्रत्यय ज्ञान, पर्याय, विलोम, श्रुतिसमभिन्नार्थक शब्द
5. वाक्य विन्यास- पदक्रम एवं पद अन्विति
6. मुहावरों एवं लोकोक्तियों का अर्थ तथा प्रयोग (कुल 50 सूची संलग्नक-2)

(ख) व्यावहारिक हिंदी **30**

अनुच्छेद लेखन 100 से 150 शब्द में (पर्व-उत्सव, संस्कृति, दर्शनीय स्थल, ऋतुएँ, यात्रा वृतान्त,
भारतीय कलाएँ आदि)
पत्र लेखन (अनौपचारिक एवं औपचारिक), स्ववृत्त लेखन
व्यावहारिक अनुवाद अंग्रेजी-हिंदी, हिंदी-अंग्रेजी
पारिभाषिक शब्दों के अनुवाद कुल 500 (25 अंग्रेजी से हिंदी और 25 हिंदी से अंग्रेजी)
(संलग्नक-3)
संक्षिप्त अनुच्छेदों का अनुवाद

(ग) पाठ-संकलन **40**

1. पुष्प की अभिलाषा (काव्य) - माखनलाल चतुर्वेदी
2. कोशिश करने वालों की कभी हार नहीं होती (काव्य) - हरिवंशराय बच्चन
3. हार की जीत (कहानी) - सुदर्शन
4. बूढ़ी काकी (कहानी) - प्रेमचंद

(घ) फिल्म-अध्ययन **10**

1. लगान (फिल्म)
2. मैरी कॉम (फिल्म)

(फिल्म के आधार पर कहानी, चरित्र, उद्देश्य और अभिनय पर संक्षिप्त प्रश्न पूछे जाएँगे)

संलग्नक - 1

हिंदी की आधारभूत शब्दावली (100 शब्द)

फल	**Fruits**		**सब्ज़ियाँ**	**Vegetables**
अंगूर	Grapes		आलू	Potato
अनार	Pomegranate		खीरा	Cucumber
अनानास	Pineapple		गाजर	Carrot
अमरूद	Guava		टमाटर	Tomato
आम	Mango		प्याज़	Onion
केला	Banana		पत्तागोभी	Cabbage
तरबूज़	Watermelon		फूलगोभी	Cauliflower
पपीता	Papaya		बैंगन	Brinjal
संतरा	Orange		मटर	Peas
सेब	Apple		पालक	Spinach

रंग	Colours		पर्व-उत्सव	Festival
काला	Black		होली	Holi
गुलाबी	Pink		दशहरा	Dushhera
नीला	Blue		दीवाली	Divali
पीला	Yellow		रक्षाबंधन	Rakshabandhan
बैंगनी	Purple		जन्माष्टमी	Janmashtmi
भूरा	Brown		ईद	Id
लाल	Red		क्रिसमस	Christmas
नारंगी	Orange		गणतंत्र दिवस	Republic Day
सफ़ेद	White		स्वतंत्रता दिवस	Independance Day
हरा	Green		गांधी जयंती	Gandhi Jayanti

सप्ताह के दिन	Days of Week		ऋतुएँ	Seasons
रविवार	Sunday		वसंत	**Spring**
सोमवार	Monday		ग्रीष्म	**Summer**
मंगलवार	Tuesday		वर्षा	**Monsoon**
बुधवार	Wednesday		हेमन्त	**Pre Winter**
गुरुवार	Thursday		शिशिर	**Winter**
शुक्रवार	Friday		शरद	**Autumn**
शनिवार	Saturday			

पर्यटन-स्थल	Places of Tourism		सम्बन्ध	Relations
लालकिला	Red Fort		माता	Mother
जामामस्जिद	Jama Masjid		पिता	Father
क़ुतुबमीनार	Qutab Minar		भाई	Brother
बिरलामंदिर	Birla Mandir		बहिन	Sister
अक्षरधाम	Akshardham		दादा	Grand Father
इंडियागेट	India Gate		दादी	Grand Mother
हवामहल	Hava Mahal		चाचा	Uncle
जंतर-मंतर	Jantar Mantar		चाची	Aunt
चारमीनार	Char Minar		पति	Husband
ताजमहल	Tajmahal		पत्नी	Wife

शरीर के अंग	Parts of Body		खाने की चीज़ें	Food Stuff
आँख	Eye		चाय	Tea
कान	Ear		डबलरोटी	Bread
गला	Throat		मक्खन	Butter
जीभ	Tongue		अंडा	Egg
दाँत	Teeth		दूध	Milk
नाक	Nose		चीनी	Sugar
पेट	Stomach		नमक	Salt
पैर	Feet		कालीमिर्च	Black Pepper
सिर	Head		छोटी इलायची	Cardamom
हाथ	Hand		दही	Curd

वस्तुएँ	Objects
कुर्सी	Chair
मेज़	Table
पंखा	Fan
घड़ी	Watch
पर्दा	Curtain
कम्बल	Blanket
चादर	Sheet

संलग्नक - 2

मुहावरे एवं लोकोक्तियाँ

1.	नाच ना जाने, आँगन टेढ़ा	A bad workman quarrels with his tools
2.	नौ नगद, न तेरह उधार	A bird in hand is worth two in bush
3.	दूध का जला छाछ को भी फूँक–फूँक कर पीता है	A burnt child dreads the fire
4.	ऊँट के मुँह में जीरा	A drop in the ocean
5.	अन्धों में काना राजा	A figure among cyphers
6.	ओस चाटे प्यास नहीं बुझती	A fog connot be dispelled by a fan
7.	का बरसा जब कृषि सुखाने	After death, the doctor
8.	कंगाली में आटा गीला	A light purse is a heavy curse
9.	नीम हकीम खतरे जान	A little knowledge is a dangerous thing
10.	अंत भला, तो सब भला	All is well that ends well
11.	खाली दिमाग शैतान का घर	An idle brain is a workshop of Devil
12.	चार दिन की चाँदनी, फिर अंधेरी रात	A nine day's wonder
13.	यथा राजा तथा प्रजा	As the king, so are his subjects

14. जैसी करनी वैसी भरनी	As you sow, so shall your reap
15. जो गरजते हैं, वे बरसते नहीं। थोथा चना बाजे घना	Barking dogs seldom bite
16. दान की बछिया के दाँत नहीं गिने जाते	Beggars cannot be choosers
17. पहले तोलो, फिर मुँह खोलो	First weigh than say
18. होनहार बिरवान के होत चीकने पात	Coming events cast their shadows before
19. चादर देखकर पाँव पसारो	Cut your coat according to your cloth
20. दूर के ढोल सुहावने	Distant drums sound well
21. ऊँची दूकान फीका पकवान	Great cry, little wool
22. बंदर क्या जाने अदरक का स्वाद	Honey is not for donkey's mouth
23. एक हाथ से ताली नहीं बजती	It takes two to make a quarrel
24. बिन सेवा मेवा नहीं	No pain, no gain
25. लातों के भूत बातों से नहीं मानते	Rod is the logic of fools
26. अपने मुँह मियाँ मिट्ठू	Self praise is no recommendation
27. जैसे को तैसा	Tit for tat
28. एक पंथ दो काज	To kill two birds with one stone
29. जैसा देश, वैसा वेष	When you go to Rome, do as the Romans do
30. झगड़े की जड़	A bone of Contenting
31. आँख का तारा	Apple of one's eye
32. इधर कुआँ, उधर खाई	Between the devil and deep sea
33. प्रतिभा पलायन	Brain drain
34. चोरी का माल, मोरी में	Easy come easy go
35. थोथा चना, बाजे घना	Empty vassels make much noise
36. सूर्य को चिराग दिखाना	Hold the candle to the sun
37. जबान को लगाम दो	Hold your mouth
38. अपने काम से काम रखना	Mind one's own business
39. छठे–छमाहे / भूले–भटके / ईद का चाँद	Once in a blue moon
40. टाँग खींचना	Pull one's leg
41. इधर–उधर की हाँकना	To beat about the bush
42. पल में तोला पल में माशा	To blow hot and cold
43. एड़ी चोटी का जोर लगाना	To do one's level best
44. हुक्का–पानी बंद करना	To freeze out
45. बगले झाँकना, भौचक्का होना	To look blank
46. मुँह की बात छीनना	To take the words out of mouth
47. हवाई किले बनाना	To walk on air
48. एक थैली के चट्टे बट्टे	Birds of the same feathers flock together
49. लड़ाई झगड़े का जीवन	Cat and dog life
50. मूसलाधार बारिश	It's raining cat and dog

पारिभाषिक शब्दों की सूची (25 अंग्रेजी से हिंदी और 25 हिंदी से अंग्रेजी)

	ENGLISH	हिंदी
1.	Ordinance	अध्यादेश
2.	Non-resident	अनिवासी
3.	Minority Commission	अल्पसंख्यक आयोग
4.	Allotment	आबंटन
5.	Excise Duty	उत्पाद शुल्क
6.	Monopoly	एकाधिकार
7.	Cottage industries	कुटीर उद्योग
8.	Republic	गणतंत्र
9.	Hoarding	जमाखोरी
10.	Panel	नामिका/सूची/नामसूची
11.	Atomic Energy	परमाणु ऊर्जा
12.	Ancestral property	पैतृक सम्पत्ति
13.	Waiting list	प्रतीक्षा–सूची
14.	Multi-national companies	बहुराष्ट्रीय कम्पनियां
15.	Basic Education	बुनियादी शिक्षा
16.	Land Revenue	भू–राजस्व
17.	Defamation	मानहानि
18.	Truce/Ceasefire	युद्ध–विराम
19.	Creditor	लेनदार
20.	Speaker Lok Sabha	लोकसभा अध्यक्ष
21.	Financial crisis	वित्तीय संकट
22.	Summit	शिखर सम्मेलन
23.	Public undertaking	सरकारी उपक्रम
24.	Community development	सामुदायिक विकास
25.	Security council	सुरक्षा परिषद्

	हिंदी	ENGLISH
1.	पूर्ण एकाधिकार	Absolute monopoly
2.	स्थगन प्रस्ताव	Adjournment motion
3.	सौंदर्यशास्त्र	Aesthetics
4.	कार्य–सूची	Agenda
5.	प्रदूषण विरोधी अभियान	Anti-pollution drive
6.	कौशल, अभिक्षमता	Aptitude
7.	तुलन–पत्र	Balance sheet
8.	पुस्तक समीक्षा	Book review
9.	दफ्तरशाही, नौकरशाही	Bureaucracy
10.	पूंजी निवेश	Capital investment
11.	कालक्रम	Chronological order
12.	नागरिक अधिकार	Civil rights

13.	सामूहिक जुर्माना	Collective fine
14.	स्तंभ लेखक	Columnist
15.	जांच आयोग	Commission of inquiry
16.	सद्भाव	Hormony
17.	रूढ़िवादी समाज	Conservative Society
18.	संविदा, ठेका	Contract
19.	पदावनति	Demotion
20.	अवमूल्यन	Devaluation
21.	वृत्तचित्र	Documentary Film
22.	रोजगार केंद्र (रोजगार कार्यालय)	Employment Exchange
23.	मूल्यांकन	Evaluation
24.	जाली, नकली दस्तावेज	Forged Document
25.	कार्यसाधक ज्ञान	Functional Knowledge

31. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding introduction of Functional Hindi in B.A. (Prog.) Course under CBCS. (E.C. 28.02.2017/07.03.2017)

बी.ए. (प्रोग्राम) प्रयोजनमूलक हिंदी पाठ्यक्रम (2015-2016 से लागू)

सेमेस्टर - I

1.1 हिंदी भाषा : अनुप्रयोग के क्षेत्र (Core Discipline-1)

1.2 हिंदी भाषा योग्यता संवर्द्धक पाठ्यक्रम (Language - MIL/English Comm., AECC)

सेमेस्टर - II

2.1 हिंदी भाषा : कार्यालयी लेखन (Core Discipline-2)

2.2 आधुनिक भारतीय भाषा : भाषा और साहित्य क/ख/ग (Language - MIL/English-1)

सेमेस्टर - III

3.1 प्रयोजनमूलक हिंदी : अनुवाद और अनुवाचन (Core Discipline-3)

3.2 कौशल संवर्द्धक पाठ्यक्रम (Skill Enhancement Course, Any One)

(क) लेखन कौशल : विस्तार एवं संभावनाएं

अथवा

(ख) वेब पत्रकारिता

सेमेस्टर - IV

4.1 हिंदी अनुप्रयोग : तकनीकी संसाधन एवं उपकरण (Core Discipline-4)

4.2 आधुनिक भारतीय भाषा - हिंदी गद्य : उद्भव और विकास - क/ख/ग (Language MIL/English-2)

4.3 कौशल संवर्द्धक पाठ्यक्रम (Skill Enhancement Course, Any One)

(क) हिंदी - शिक्षण

अथवा

(ख) पारिभाषिक शब्दावली एवं कोश विज्ञान

सेमेस्टर - V

5.1 विषय आधारित ऐच्छिक पाठ्यक्रम (Discipline Specific Elective-1, Any One)

(क) मनोरंजन-उद्योग और हिंदी

अथवा

(ख) हिंदी के विविध रूप

5.2 सामान्य ऐच्छिक पाठ्यक्रम (Generic Elective-1, Any One)

(क) कम्प्यूटर और हिंदी

अथवा

(ख) विज्ञापन, बाज़ार और हिंदी

सेमेस्टर - VI

6.1 विषय आधारित ऐच्छिक पाठ्यक्रम (Discipline Specific Elective-2, Any One)

(क) सृजनात्मक लेखन : सिद्धांत और व्यवहार

अथवा

(ख) विज्ञान, तकनीक, प्रोद्योगिकी और हिंदी

6.2 सामान्य ऐच्छिक पाठ्यक्रम (Generic Elective-2, Any One)

(क) हिंदी में कार्टून, डबिंग और ग्राफिक बाल कथाएँ

अथवा

(ख) जनमाध्यम और हिंदी

32. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding introduction of Sanskrit Communication in B.A. (Prog.) Course. (E.C. 28.02.2017/07.03.2017)

Sanskrit MIL Communication

[A] Prescribed Course: **Total 28 Credits**

Section 'A'	Basic Sanskrit Grammar	8 Credits
Section 'B'	Śabda and Dhāturupa	6 Credits
Section 'C'	Translation, Unseen Passages and Short Essay	9 Credits
Section 'D'	Text	5 Credits

[B] Course Objectives:

This course aims to provide the student the elementary knowledge of the logical structure of Sanskrit language and enable him to communicate the Sanskrit sentences on his own up to a certain extent so that he can make further progress in his study of the Sanskrit texts and appreciate the beauty of the language.

[C] Unit-Wise Division:

Section 'A'
(Basic Sanskrit Grammar)

***Sandhi* Rules :**

Svarasandhi : dīrgha, yaṇ, ayādi, pararūpa, pūrvarūpa
Halsandhi : ścutva, ṣṭutva, jaśtva, anunāsika
Visargasandhi : satva, utva

***Samāsa* :**

- Concept of *Samāsa*
- Types of *Samāsa*

Kāraka* and *Vibhakti

Unit: I

- Concept of *Kāraka*
- Types of *Kāraka*
- Concept of *Vibhakti*
- *Kāraka-vibhakti* and *Upapada-vibhakti*.

08 Credits

Sanskrit Suffixes :

- *Kṛt* Suffixes **:** *tavyat, anīyar, śatṛ, śānac, tumun, ktvā (lyap), lyuṭ.*

Taddhita Suffixes **:** *matup, ini, ṭhan (matvartha), tva, tal, imanic, ṣyañ, tarap, tamap, iṣṭhan, īyasun*

Section 'B'
Śabda and Dhāturupa

Unit: I

शब्दरूप : राम, कवि, भानु, पितृ, लता, मति, नदी, फल।
धातुरूपः भू, अस्, दिव्, तुद्, सु, रुध्, सेव् in लट्, लङ्, लृट् and विधिलिङ्) ।

06 Credits

Section 'C'
Translation, Unseen Passages and Short Essay

Unit: I

- Rules of sentence formation.
- Sentences in active voice (*kartṛvācya*)
- Finding answers from unseen passages
- Short essay writing

09 Credits

Section 'D'
Text

Unit I Bhagavadgītā – 16th Chapter. **05 Credits**

Note: Teachers are also free to suggest any relevant books/articles/e-resource if needed.

33. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding introduction of Core Paper No. 12 in B.A. (Hons.). Course. (E.C. 28.02.2017/07.03.2017)

C-12
Sanskrit Grammar: Laghusiddhāntkaumudī

[A] Prescribed Course: **Total 56 Credits**

Section 'A'	samjñā and sandhi prakaraṇa from Laghusiddhāntkaumudī	26 Credits
Section 'B'	samāsa prakaraṇa from Laghusiddhāntkaumudī	18 Credits
Section 'C'	kṛdanta from Laghusiddhāntkaumudī	12 Credits

[B] Course Objectives:
This course aims to acquire the knowledge of Sanskrit Grammar.

[C] Unit-Wise Division:

Section 'A'
Samjñā and sandhi prakaraṇa from Laghusiddhāntkaumudī

Unit: I	Sutra's of *samjñā* and *ac sandhi* (*yaṇ, guṇ, ayādi, vṛddhi, pūrvarūpa*)	**13 Credits**
Unit: II	Sutra's of *hal sandhi* and *visarga sandhi (ścutva, ṣṭutva, anunāsikatva, chhatva, jaśtva, ṣatva utva, lopa*)	**08 Credits**
Unit: III	Practice of Applications of *Sandhis* in prescribed texts literacy texts	**05 Credits**

Section 'B'
samāsa prakaraṇa from Laghusiddhāntkaumudī

Unit: I	Major sutras used in formation of *avyayībhāva samāsa* and *tatpuruṣa samāsa*	**11 Credits**
Unit: II	Major *Sutras* for the formation of *dwandva* and *bahubrīhi samāsa*	**07 Credits**

Section 'C'
kṛdanta from Laghusiddhāntkaumudī

Unit: I	Major sutras for the formation of *kṛdanta* words (*tavyat, tavya, anīyar, yat, ṇavul, tric, aṇ, kta, katavatu, śatri, śānac, tumun, ktvā* (*lyap*), *lyuṭ*)	**12 Credits**

Note: Teachers are also free to recommend any relevant books/articles/e-resource if needed.

34. Amendments to Appendix II to Ordinance V(2) & VII and to all other relevant Ordinances of the University regarding introduction of French/German/Spanish papers in B.A. (Prog.) Course. (E.C. 28.02.2017/07.03.2017)

FRENCH PAPER IN B.A. (PROG.)

Scheme for Course

Semester	Course Opted	Course Name	Credits
I	French Core Course 01	Study of the Language (1)	6
II	French Core Course 02	Study of the Language (2)	6
III	French Core Course 03	Study of the Language (3)	6
	SEC - 01	French through audio visual methods: Songs and Lyrics	2
IV	French Core Course 04	Study of the Language, Culture and Literature	6
	SEC - 02	French through audio visual methods: Films	2
V	French DSE - 01	Life in France and Francophone Countries	6
	French DSE - 02	French Media Studies*	6
	SEC - 03	French in the Travel and Tourism Sector	2
VI	French DSE - 03	Introduction to Translation	6
	French DSE - 04	Children and Adolescent Literature	6
	SEC - 04	Business French	2
	Generic Elective in French	Introduction to French	6
Total Credits			**62**

GERMAN PAPER IN B.A. (PROG.)

Scheme for Course

Semester	Course Opted	Course Name	Credits
I	Core Course 01	Study of the Language (1)	6
II	Core Course 02	Study of the Language (2)	6
III	Core Course 03	Study of the Language (3)	6
	SEC - 01	German through audio visual methods: Songs and Lyrics	2
IV	Core Course 04	Study of the Language, Culture and Literature	6
	SEC - 02	German through audio visual methods: Films	2
V	DSE - 01	Life in German speaking Countries, Elements of History, Culture and Civilization	6
	DSE - 02	German Media Studies*	6
	SEC - 03	German in the Travel and Tourism Sector	2
VI	DSE - 03	Introduction to Translation	6
	DSE - 04	Children and Adolescent Literature	6
	SEC - 04	Business German	2
	Generic Elective in German	Introduction to German	6
Total Credits			**62**

SPANISH PAPER IN B.A. (PROG.)

Scheme for Course

Semester	Course Opted	Course Name	Credits
I	Core Course 01	Study of the Language (1)	6
II	Core Course 02	Study of the Language (2)	6
III	Core Course 03	Study of the Language (3)	6
	SEC - 01	Spanish through audio visual methods: Songs and Lyrics	2
IV	Core Course 04	Study of the Language, Culture and Literature	6
	SEC - 02	Spanish through audio visual methods: Films	2
V	DSE - 01	Life in Spain and Latin American Countries, Elements of History, Culture and Civilization	6
	DSE - 02	Hispanic Media Studies*	6
	SEC - 03	Spanish in the Travel and Tourism Sector	2
VI	DSE - 03	Introduction to Translation	6
	DSE - 04	Children and Adolescent Literature	6
	SEC - 04	Business Spanish	2
	Generic Elective in Spanish	Introduction to Spanish	6
Total Credits			**62**

35. Amendments to Regulation of Examinations of the University related to Examination Committees and Tabulation of Results. (Page No. 705-707 of the University Calendar Vol-II (1989)) (E.C. 28.02.2017).

	EXISTING	AMENDED
Clause (1) Sub Clause 6	**(iii) Board of Moderators for examinations pertaining to Under-graduate courses:** There will be a separate Board of Moderators for question papers in each subject and this Board will consist of: 1. The Head of the Department concerned 2. Two persons nominated by the Vice Chancellor from amongst the examiners in the subject concerned.	**(iii) Board of Moderators for examinations pertaining to Under-graduate courses:** The moderation of the question papers shall be done in the respective departments. There will be a separate Board of Moderators for question papers in each subject and this Board will consist of: 1. The Head of the Department concerned 2. Two persons nominated by the Head of the Department from amongst the examiners of the Department in the subject concerned.

	(iv) Board of Moderators for Examination Results As regards the under-graduate examinations, there should be one Board for each subject and this Board will consist of: 1. The Head of the Department concerned 2. Two persons nominated by the Vice Chancellor from against the examiners in the department in the subject concerned.	**(iv) Board of Moderators for Examination Results** As regards the undergraduate examinations, there should be one Board for each subject and this Board will consist of: 1. The Head of the Department concerned or his nominee. 2. Two persons nominated by the Head of the Department in the subject concerned (one shall be essentially required to be present in the moderation meeting)
	(v) There should be another committee to moderate the results in all subjects for a particular undergraduate degree. This should consist of the Deans and the Heads of the Departments concerned.	(v) There should be another committee to moderate the results in all subject/s for a particular undergraduate degree. This should consist of the Deans or Heads of the Departments concerned or his nominee.
	(vi) In the event of a particular member (including the Head of the Department) not being able to attend the meeting of the Board of Moderators, he/she will inform the Vice Chancellor in advance and the latter may appoint another person in his/her place as a member of the Board.	***deleted.***
Clause (2) Sub Clause 5	**(b) Machine Tabulation** The results of the examination processed on computer will be checked by two Tabulators independently and final results compiled after comparison of the two result statements. Each result statement will then be scrutinized by two scrutineers, independently.	**(b) Machine Tabulation** The processing of the examination shall be done by two vendors engaged by the approval of the competent authority. The vendors shall process the result on the basis of the awards received from the Central Evaluation Centre or from a person authorized for the same. The computerized tabulation data prepared by the two vendors shall be then matched before the final tabulation and gazette is prepared for publication of result. Since the data shall also be stored in DBF and PDF format, the printing and binding of

		two sets of tabulation and gazette as is in practice, will not serve any significant purpose. It is therefore, approved that one set of tabulation prepared by one vendor shall be preserved in printed form while one set of the second vendor shall be preserved as soft copy for future use. This arrangement will not only consume less space for the storage of the tabulations but also restrain the use of manpower, paper cartridge and other stationery being used for the purpose. The above amendments have been approved in view of the ongoing semester system of examination, since under the semester system, the time gap between the two examinations is much less i.e. nearly 4 months which makes the task more difficult for the examination wing in the sense that the examination wing has to go through the whole examination process twice.

36. Amendments to Ordinance IX of the Ordinances of the University related to Classification of Results and to all other relevant Ordinances of the University. (Page No. 346 of the University Calendar Volume I (2004)). (E.C. 28.02.2017/07.03.2017)

	Existing	Amended
Clause (7)	**7. Promotion Rules for All the Under-Graduate Courses under the Semester Scheme**. 7(1) (a) A student who has obtained 40% in the aggregate taking together all the papers in theory examination (including internal assessment / project work) and practical examinations, separately, conducted in the first and second semesters shall be promoted to the second academic year / third semester and similarly from the second academic year to third academic year/fifth semester.	**7. Passing/Promotion Criteria and eligibility for the award of Degree for the Honors and Programme Courses under the Three Year Semester-Scheme.** **7(1) (a)** (i) A student who has obtained 40% in the aggregate taking together all the papers in theory examination (including internal Assessment/project work) and practical examinations separately, conducted in the first and second semesters shall be promoted to the second academic year/third semester and similarly from the second academic year to third academic year/fifth semester.

		(ii) A student who has obtained 40% in the aggregate taking together all the papers in theory examination (including internal assessment / project work) and practical examinations separately, till the end of the third year i.e. upto the end of the sixth semester shall be awarded the Bachelor's with Honours degree in case of Honours courses (B.A.(Hons) / B.Com(Hons) / B.Sc.(Hons) and Bachelor's Degree in programme courses (B.A./B.Com and B.Sc.).
	Pass Percentage & Promotion Criteria (b) A student shall be eligible for promotion from 1st year to 2nd year of the course provided she/he has passed 50% papers of I and II Semester taken together. (c) Similarly, a student (irrespective of Part I results) shall be eligible for promotion from 2nd year to 3rd year of the course provided she/he has passed 50% papers of III and IV Semesters taken together. (d) Students who do not fulfill the promotion criteria (b) & (c) above shall be declared fail in the Part concerned. However, they shall have the option to retain the marks in the papers in which they have secured Pass marks as per Clause (a) above. (e) A student who has to reappear in a paper prescribed for Semester I/III/ V may do so only in the Semester examinations to be held in November/December. A student who has to reappear in a course prescribed for Semester II/IV/VI may do so only in the examination to be held in April/May.	(b) A student shall be eligible for promotion from 1st year to 2nd year of the course provided she/he has passed 50% papers of I and II Semester taken together. (c) Similarly, a student (irrespective of Part I results) shall be eligible for promotion from 2nd year to 3rd year of the course provided she/he has passed 50% papers of III and IV Semesters taken together. (d) Students who do not fulfill the promotion criteria (b) & (c) above shall be declared fail in the Part concerned. However, they shall have the option to retain the marks in the papers in which they have secured Pass marks as per Clause (a) above. (e) A student who has to reappear in a paper prescribed for Semester I/III/ V may do so only in the Semester examinations to be held in November/December. A student who has to reappear in a course prescribed for Semester II/IV/VI may do so only in the examination to be held in April/May.
Clause (10)	a. A student who appear in an odd semester examination or who was eligible to appear in the odd semester examination but remains absent in any	a. xxx xxx xxx

	or all the papers of the said semester, shall move on to the next even semester irrespective of his/her result in the said examination.	
	b. A student who has obtained 40% on the aggregate taking together all the papers in theory examination (including internal assessment/ project work) and practical examination, separately, conducted in the first and second semesters shall be promoted to the second academic year/third semester.	b. A student who has obtained 40% in the aggregate taking together all the papers in theory examination (including internal Assessment/ project work) and practical examinations separately, conducted in the first and second semesters shall be promoted to the second academic year/third semester and similarly from the second academic year to third academic year/fifth semester.
	c. A student who has obtained 40% on the aggregate taking together all the papers in theory examination (including internal assessment/ project work) and practical examination, separately, conducted in the third and fourth semesters shall be promoted to the third academic year/fifth semester provided s/he has not exercised the option to exit with a Diploma Degree.	c. xxx xxx xxx
	d. A student who has obtained 40% on the aggregate taking together all the papers in theory examination (including internal assessment/ project) and practical examination, separately, conducted in the fifth and sixth semesters shall be promoted to the fourth academic year/seventh semester provided s/he has not exercised the option to exit with a Bachelor's Degree.	d. A student who has obtained 40% in the aggregate taking together all the papers in theory examination (including internal assessment /project work and practical examinations separately conducted in the fifth and sixth semesters shall be promoted to the fourth academic year/seventh semesters.
Clause (11)	a. If a student has secured an aggregate of minimum 40 % marks taking together all the papers in theory examination (including internal assessment) and practical examination separately till the end of the second year, i.e., up to the end of fourth semester, then s/he shall be awarded a Diploma, if s/he exercises the option to exit at the end of the second year.	a. xxx xxx xxx

	b. If a student has secured an aggregate of minimum 40 % marks taking together all the papers in theory examination (including internal assessment/project/continuous evaluation, where applicable) and practical examination separately till the end of the third year, i.e., up to the end of sixth semester, then s/he shall be awarded the Bachelor's degree if s/he exercises the option to exit at the end of the third year.	b. xxx xxx xxx
	c. If a student has secured an aggregate of minimum 40% marks taking together all the papers in theory examination (including internal assessment/project/continuous evaluation, where applicable) and practical examination separately till the end of the fourth year, i.e., up to the end of eighth semester, then s/he shall be awarded the Bachelor's with Honours/B.Tech.	c. if a student has secured an aggregate of minimum 40% marks taking together all the papers in theory examination (including internal assessment/project work) and practical examinations separately till the end of the fourth year i.e. upto the end of the eighth semester, then he/she shall be awarded with the Bachelor's Degree in B. Tech.

37. Amendments to Clause 12 of Ordinance IX of the Ordinances of the University and to all other relevant Ordinances of the University related to Classification of Results. (Page No. 346 of the University Calendar Volume I (2004)).(E.C. 28.02.2017/07.03.2017)

Ordinance IX Clause 12:

EXISTING	AMENDED
12. Pass Percentage and Promotion Rules for all the Under-Graduate Courses under Choice Based Credit System	**12. Passing and Promotion Rules for all the Under-Graduate Courses under Choice Based Credit System**
12(1)	**12(1)**
(a) ----No change-----	(a) ----No change-----
(b) A student who has obtained 40% on the aggregate taking together all the papers in theory examination (including internal assessment/ project work) and practical examination separately conducted in Ist and IInd semester shall be promoted to the second academic year/IIIrd semester.	(b) **Passing Rules:** The results shall be prepared on the basis of the formula prescribed at **Table 'A'** with the computation of grade cut off. The passing criteria of attaining 40% marks in numerical value is therefore to be **'deleted'**.
(c) A student who has obtained 40% on the aggregate taking together all the papers in theory examination (internal assessment/ project work) and practical examinations separately, conducted in IIIrd and IVth semester shall be promoted to the third academic year/ Vth semester.	(c) **Promotion Rules:** A student shall be eligible for promotion from 1st year to 2nd year/III semester provided he/she has passed 50% papers of I and II semester taken together and similarly for promotion from 2nd year to 3rd year/V semester.
(d) Students who do not fulfill the promotion criteria mentioned above shall be declared fail in the promotion examination of the academic year concerned. However, they shall have the option to retain the marks in the papers in which they want to retain.	(d) The students shall be declared fail as per the formula prescribed at **Table 'A'**. However, they shall have the option to retain the marks in the paper in which they want to retain.

<table>
<tr>
<td>(e) If a student has secured an aggregate of minimum 40% marks taking together all the papers in theory examination (including internal assessment/ project, wherever applicable) and practical exam separately till the end of the third year, i.e., upto the end of the VIth semester, then she/he shall be awarded the degree in which the student has been admitted.

(f) ----No change-----</td>
<td>(e) Eligibility for award of degree:

A student shall be declared eligible for degree provided he/she passed all the papers of 1st year 2nd year and 3rd year of a course as per clause 12(3) of Ordinance IX.

(f) ----No change-----</td>
</tr>
<tr>
<td>12 (3) Letter grades and grade points

(a) A student who becomes eligible for the degree as per Ordinance IX, 12(1). Such a student shall be categorized on the basis of the combined result of semester I to semester VI examinations under CBCS on a 10 point grading system with the following Letter Grades as given below:

<table>
<tr><th>Letter Grade</th><th>Grade Point</th></tr>
<tr><td>O (Outstanding)</td><td>10</td></tr>
<tr><td>A+ (Excellent)</td><td>9</td></tr>
<tr><td>A (Very Good)</td><td>8</td></tr>
<tr><td>B+ (Good)</td><td>7</td></tr>
<tr><td>B(Above Average)</td><td>6</td></tr>
<tr><td>C (Average)</td><td>5</td></tr>
<tr><td>P (Pass)</td><td>4</td></tr>
<tr><td>F (Fail)</td><td>0</td></tr>
<tr><td>Ab (Absent)</td><td>0</td></tr>
</table>
</td>
<td>12 (3) Letter grades and grade points

(a) ---- No Change ----</td>
</tr>
</table>

Issue of Transcripts: Based on the grades earned, a Grade Certificate shall be issued to all the registered students by the University after every semester and a consolidated transcript indicating the performance in all semesters. The Grade Certificate will display the course details (code, title of the paper, number of credits, grade secured) along with SGPA of each semester and CGPA earned based on overall six semesters.

Add the following:-

The results for the all the Undergraduate courses under the CBCS shall be based on a 10 point grading system with Letter Grades as per the formula prescribed by the University Grants Commission with minor changes in the computation of the grade cut offs as at **Table 'A'** below:

Table 'A'

Letter Grade	Numerical Grade	Formula	Computation of Grade Cut off
O (Outstanding)	10	$m \geq \bar{X} + 2.5\ \sigma$	the value of $\bar{X}$ + 2.5 σ to be taken into account for grade computation will be Actual $\bar{X}$+ 2.5 σ or 90% whichever is lower
A+ (Excellent)	9	$\bar{X} + 2.0\ \sigma \leq m < \bar{X} + 2.5\ \sigma$	the value of $\bar{X}$ + 2.0 σ to be taken into account for grade computation will be Actual $\bar{X}$+ 2.0 σ or 80% whichever is lower
A (Very Good)	8	$\bar{X} + 1.5\ \sigma \leq m < \bar{X} + 2.0\ \sigma$	the value of $\bar{X}$ + 1.5 σ to be taken into account for grade computation will be Actual $\bar{X}$ + 1.5 σ or 70% whichever is lower
B+ (Good)	7	$\bar{X} + 1.0\ \sigma \leq m < \bar{X} + 1.5\ \sigma$	the value of $\bar{X}$+ 1.0 σ to be taken into account for grade computation will be Actual $\bar{X}$+ 1.0 σ or 60% whichever is lower
B (Above average)	6	$\bar{X} \leq m < \bar{X} + 1.0\ \sigma$	the value of $\bar{X}$ σ to be taken into account for grade computation will be Actual $\bar{X}$ or 50% whichever is lower
C (Average)	5	$\bar{X} - 0.5\ \sigma \leq m < \bar{X}$	the value of $\bar{X}$ – 0.5 σ to be taken into account for grade computation will be Actual $\bar{X}$ - 0.5 σ or 40% whichever is lower
D (Pass)	4	$\bar{X} - \sigma \leq m < \bar{X} - 0.5\ \sigma$	the value of $\bar{X}$- 1.0 σ to be taken into account for grade computation will be Actual $\bar{X}$ - 1.0 σ or 30% whichever is lower

08/5/17

REGISTRAR