

संत गाडगे बाबा अमरावती विद्यापीठ  
SANT GADGE BABA AMRAVATI UNIVERSITY

(Faculty of Engineering & Technology)

**PROSPECTUS**  
**Prescribed for**  
**Four / Five Year Degree Course**  
**Bachelor of Engineering Sem-VII,VIII**  
**/ Bachelor of Architecture Sem-VII-X**  
**(CREDIT GRADE SYSTEM)**

**BRANCHES**

- 1) Civil Engineering
- 2) Mechanical Engineering
- 3) Electrical Engineering (Electronics & Power)
- 4) Electrical and Electronics Engineering
- 5) Electrical Engineering (Electrical & Power)
- 6) Electrical Engineering
- 7) Architecture
- 8) Information technology
- 10) Biomedical Engineering



2013

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**FOUR YEAR DEGREE COURSE IN BACHELOR OF ENGINEERING**  
**BRANCH - CIVIL ENGINEERING - SEMESTER PATTERN (CREDIT GRADE SYSTEM)**

**SEMESTER- SEVENTH**

**Appendix - A**

Sr. No.	Subject Code	Subject	TEACHING SCHEME				EXAMINATION SCHEME									
			HOURS / WEEK			CREDITS	THEORY					PRACTICAL				
			Lecture	Tutorial	P/D		Total HOURS/WEEK	DURATION OF PAPER (Hr.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESSMENT	TOTAL	MIN. PASSING MARKS	MAX. MARKS		TOTAL	MIN. PASSING MARKS
EXTERNAL		INTERNAL														
THEORY																
01	7CE01	Theory of Structures-II	3	1	-	4	4	3	80	20	100	40	-	-	-	-
02	7CE02	Geotechnical Engineering-II	3	1	-	4	4	3	80	20	100	40	-	-	-	-
03	7CE03	Structural Design-II	4	-	-	4	4	4	80	20	100	40	-	-	-	-
04	7CE04	Environmental Engineering-I	4	-	-	4	4	3	80	20	100	40	-	-	-	-
05	7CE05	Professional Elective-I	4	-	-	4	4	3	80	20	100	40	-	-	-	-
PRACTICALS / DRAWING / DESIGN																
06	7CE06	Theory of Structures-II - Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
07	7CE07	Geotechnical Engineering-II - Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
08	7CE08	Structural Design-II - Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
09	7CE09	Project & Seminar	-	-	2	2	4	-	-	-	-	-	-	50	50	25
Total			18	2	8	28	27	500					200			
GRAND TOTAL : 700																

**Professional Elective-I (i) Advanced Water Treatment (ii) Advanced Geotechnical Engineering (iii) Water Power Engineering (iv) Prestressed Concrete (v) Artificial Neural Network & Fuzzy Logic (vi) Advanced Concrete Technology (vii) Environmental Pollution & Rural Sanitation (viii) Advanced Earthquake Engineering**

**SEMESTER : EIGHTH**

THEORY																
01	8CE01	Water Resources Engineering-II	3	-	-	3	3	3	80	20	100	40	-	-	-	-
02	8CE02	Environmental Engineering-II	3	-	-	3	3	3	80	20	100	40	-	-	-	-
03	8CE03	Project Planning & Management	3	-	-	3	3	3	80	20	100	40	-	-	-	-
04	8CE04	Professional Elective-II	4	-	-	4	4	3	80	20	100	40	-	-	-	-
PRACTICALS / DRAWING / DESIGN																
05	8CE05	Water Resources Engineering-II-Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
06	8CE06	Environmental Engineering-II - Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
07	8CE07	Project & Seminar	-	-	6	6	12	-	-	-	-	-	75	75	150	75
Total			13		10	23	27	400					250			
GRAND TOTAL : 650																

**Professional Elective-II (i) Advanced Design of Steel Structures (ii) Advanced Waste Water and Industrial Waste Treatment (iii) Finite Element Method (iv) Dam Engineering (v) Advanced Engineering Geology (vi) Matrix Computer Analysis of Structures (vii) Advanced Structural Analysis (viii) Rock Mechanics (ix) Advanced Design of RCC Structures**  
**\* PAPER 4 HOURS DURATION.**

**FOUR YEAR DEGREE COURSE IN BACHELOR OF ENGINEERING**  
**BRANCH - MECHANICAL ENGINEERING - SEMESTER PATTERN (CREDIT GRADE SYSTEM)**

**SEMESTER- SEVENTH**

**Appendix - B**

Sr. No.	Subject Code	Subject	TEACHING SCHEME				EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY				PRACTICAL				
			Lecture	Tutorial	P/D			DURATION OF PAPER (Hrs.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESSMENT	TOTAL	MIN. PASSING MARKS	EXTERNAL	INTERNAL	TOTAL	MIN. PASSING MARKS
<b>THEORY</b>																
01	7ME01	Machine Design & Drawing II	3	-	-	3	3	4	80	20	100	40	-	-	-	-
02	7ME02	Energy Conversion-II	3	1	-	4	4	3	80	20	100	40	-	-	-	-
03	7ME03	Industrial Management and Costing	3	1	-	4	4	3	80	20	100	40	-	-	-	-
04	7MF04	Automation Engineering	3	1	-	4	4	3	80	20	100	40	-	-	-	-
05	7ME05	Professional Elective-I	3	1	-	4	4	3	80	20	100	40	-	-	-	-
<b>PRACTICALS / DRAWING / DESIGN</b>																
06	7ME06	Project & Seminar	-	-	2	2	4	-	-	-	-	-	-	50	50	25
07	7ME07	Machine Design & Drawing-II-Lab.	-	-	2	2	1	-	-	-	-	-	25	25	50	25
08	7MF08	Energy Conversion-II-Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
09	7ME09	Automation Engineering-Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
10	7ME10	Professional Elective I - Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
<b>Total</b>			15	4	10	29	27	<b>500</b>				<b>250</b>				

**GRAND TOTAL : 750**

Professional Elective-I (1) Non Conventional Energy System (2) Tool Engineering (3) Artificial Intelligence & Expert Systems (4) Mechatronics

**SEMESTER : EIGHTH**

Sr. No.	Subject Code	Subject	TEACHING SCHEME				EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY				PRACTICAL				
			Lecture	Tutorial	P/D			DURATION OF PAPER (Hrs.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESSMENT	TOTAL	MIN. PASSING MARKS	EXTERNAL	INTERNAL	TOTAL	MIN. PASSING MARKS
<b>THEORY</b>																
01	8ME01	Elective-II	3	-	-	3	3	3	80	20	100	40	-	-	-	-
02	8ME02	Elective-III	3	-	-	3	3	3	80	20	100	40	-	-	-	-
03	8ME03	I.C. Engines	3	-	-	3	3	3	80	20	100	40	-	-	-	-
04	8ME04	Operations Research Techniques	3	-	-	3	3	3	80	20	100	40	-	-	-	-
<b>PRACTICALS / DRAWING / DESIGN</b>																
05	8ME05	Project & Seminar	-	-	6	6	12	-	-	-	-	-	75	75	150	75
06	8ME06	Professional Elective-III-Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
07	8ME07	I.C. Engines-Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
08	8ME08	Operations Research Techniques-Lab	-	-	2	2	2	-	-	-	-	-	25	25	50	25
<b>Total</b>			12	-	12	24	27	<b>400</b>				<b>300</b>				

**GRAND TOTAL : 700**

Professional Elective-II (1) Automobile Engineering (2) Production Planning & Control (3) Management Information Systems (4) Advanced Manufacturing Systems  
Professional Elective-III (1) Refrigeration & Air Conditioning (2) Machine Tool Design (3) Finite Element Methods (4) Robotics

## FOUR YEAR DEGREE COURSE IN BACHELOR OF ENGINEERING

## BRANCH : INFORMATION TECHNOLOGY - SEMESTER PATTERN (CREDIT GRADE SYSTEM)

Appendix - H

## SEMESTER - SEVENTH

Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME								
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY				PRACTICAL				
			Lecture	Tutorial	P/D			DURATION OF PAPER (Hr.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESSMENT	TOTAL	MIN. PASSING MARKS	MAX. MARKS		TOTAL	MIN. PASSING MARKS
EXTERNAL	INTERNAL															
<b>THEORY</b>																
01	7IT01	Digital Signal Processing	4	-	-	4	4	3	80	20	100	40	-	-	-	-
02	7IT02	Object Oriented System Analysis & Design	4	-	-	4	4	3	80	20	100	40	-	-	-	-
03	7IT03	Web Technology	4	-	-	4	4	3	80	20	100	40	-	-	-	-
04	7IT04	Real Time Embedded Systems	4	-	-	4	4	3	80	20	100	40	-	-	-	-
05	7IT05	Professional Elective I*	4	-	-	4	4	3	80	20	100	40	-	-	-	-
<b>PRACTICALS / DRAWING / DESIGN</b>																
06	7IT06	Digital Signal Processing-Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
07	7IT07	Web Technology-Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
08	7IT08	Real Time Embedded Systems-Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
09	7IT09	Project & Seminar	-	-	2	2	4	-	-	-	-	-	-	50	50	25
TOTAL			20	-	8	28	27	500							200	
														<b>TOTAL</b>	<b>700</b>	

Professional Elective I\* (i) Distributed DBMS (ii) Modelling &amp; Simulation (iii) Artificial Intelligence &amp; Expert Systems (iv) Multimedia Technologies

<b>Semester :EIGHTH</b>																
Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME								
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY				PRACTICAL				
			Lecture	Tutorial	P/D			DURATION OF PAPER (Hr.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESSMENT	TOTAL	MIN. PASSING MARKS	MAX. MARKS		TOTAL	MIN. PASSING MARKS
EXTERNAL	INTERNAL															
<b>THEORY</b>																
01	8IT01	Digital & Wireless Communication	3	-	-	3	3	3	80	20	100	40	-	-	-	-
02	8IT02	Network Administration & Security	3	-	-	3	3	3	80	20	100	40	-	-	-	-
03	8IT03	Software Engineering	3	-	-	3	3	3	80	20	100	40	-	-	-	-
04	8IT04	Professional Elective II*	3	-	-	3	3	3	80	20	100	40	-	-	-	-
<b>PRACTICALS / DRAWING / DESIGN</b>																
05	8IT05	Network Administration & Security-Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
06	8IT06	Software Engineering-Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
07	8IT07	Computer Lab-V (Content Management System)	-	-	2	2	1	-	-	-	-	-	25	25	50	25
08	8IT08	Project & Seminar	-	-	6	6	12	-	-	-	-	-	75	75	150	75
TOTAL			12	-	12	24	27	400							300	
														<b>TOTAL</b>	<b>700</b>	

Professional Elective II\* (i) Data Warehousing &amp; Data Mining (ii) Web-Commerce (iii) Cloud Computing (iv) Neural Networks &amp; Fuzzy Logics

B.E. / B.Text./ B.Tech.  
Semester VII & VIII

Prospectus No. 141712

संत गाडगे बाबा अमरावती विद्यापीठ  
SANT GADGE BABA AMRAVATI UNIVERSITY

(Faculty of Engineering & Technology)

**PROSPECTUS**  
**Prescribed for**  
**Four Year Degree Course**  
**Bachelor of Engineering / Bachelor of Technology**  
**Semester VII & VIII**  
**(CREDIT GRADE SYSTEM)**

**BRANCHES**

- 1) Production Engineering
- 2) Electronics & Telecommunication Engineering
- 3) Electronics Engineering
- 4) Instrumentation Engineering
- 5) Computer Science and Engineering
- 6) Computer Engineering.
- 7) Textile Engineering
- 8) Chemical Engineering
- 9) Polymer (Plastic) Technology
- 10) Food, Pulp & Paper, Oil & Paint and Petrochemical Technology



2013

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## FOUR YEAR DEGREE COURSE IN BACHELOR OF ENGINEERING

## BRANCH- ELECTRONICS &amp; TELICOMMUNICATION ENGINEERING -SEMESTER PATTERN(CREDIT GRADE SYSTEM)

## SEMESTER- SEVENTH

## Appendix - B

Sr. No.	Subject Code		TEACHING SCHEME					EXAMINATION SCHEME								
			HOURS / WEEK			Total HOURS/WEE	CREDITS	THEORY				PRACTICAL				
			Lecture	Tutorial	P/D			DURATION OF PAPER (Hr.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESMEN	TOTAL	MIN. PASSING MARKS	MAX. MARKS		TOTAL	MIN. PASSING MARKS
EXTERNAL	INTERNAL															
<b>THEORY</b>																
01	7XT1	Data Communication Network	4	-	-	4	4	3	80	20	100	40	-	-	-	-
02	7X12	Microcontroller and Applications	4	1	-	5	5	3	80	20	100	40	-	-	-	-
03	7XT3	Digital Signal Processing	4	1	-	5	5	3	80	20	100	40	-	-	-	-
04	7XT4	Professional Elective-I	4	-	-	4	4	3	80	20	100	40	-	-	-	-
<b>PRACTICALS / DRAWING / DESIGN</b>																
05	7XT5	Microcontroller and Applications Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
06	7XT6	Digital Signal Processing Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
07	7XT7	Simulation Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
08	7XT8	Project and Seminar	-	-	-	2	4	-	-	-	-	-	-	50	50	25
TOTAL			16	2	6	26	25	400	-	-	-	-	-	-	200	-
Professional Elective-I: 1. VLSI Design 2. Computer Organization 3. Artificial Intelligence 4. Satellite & Optical Fibre communication 5. Audio & Video Engineering													TOTAL		600	

## Semester : Eighth

Sr. No.	Subject Code		TEACHING SCHEME					EXAMINATION SCHEME								
			HOURS / WEEK			Total HOURS/WEE	CREDITS	THEORY				PRACTICAL				
			Lecture	Tutorial	P/D			DURATION OF PAPER (Hr.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESMEN	TOTAL	MIN. PASSING MARKS	MAX. MARKS		TOTAL	MIN. PASSING MARKS
EXTERNAL	INTERNAL															
<b>THEORY</b>																
01	8XT1	UHF and Microwaves	4	1	-	5	5	3	80	20	100	40	-	-	-	-
02	8XT2	Electronics Circuit Design	4	1	-	5	5	3	80	20	100	40	-	-	-	-
03	8XT3	Wireless Communication	4	-	-	4	4	3	80	20	100	40	-	-	-	-
04	8XT4	Professional Elective-II	4	-	-	4	4	3	80	20	100	40	-	-	-	-
<b>PRACTICALS / DRAWING / DESIGN</b>																
05	8XT5	UHF & Microwaves Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
06	8XT6	Electronics Circuit Design Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
07	8XT7	Project and Seminar	-	-	-	6	12	-	-	-	-	-	75	75	150	75
TOTAL			16	2	4	28	32	400	-	-	-	-	-	-	250	-
Professional Elective-II: 1. Biomedical Engineering 2. Digital Image Processing 3.. ARM system development and design 4. Embedded and Real time system 5.Smart sensors													TOTAL		650	

## FOUR YEAR DEGREE COURSE IN BACHELOR OF ENGINEERING

## BRANCH - COMPUTER SCIENCE &amp; ENGINEERING - SEMESTER PATTERN (CREDIT GRADE SYSTEM)

## SEMESTER - SEVENTH

Appendix - E

Sr. No.	Subject Code	Subject	TEACHING SCHEME				EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY				PRACTICAL				
			Lecture	Tutorial	P/D			DURATION OF PAPER (Hr.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESMENT	TOTAL	MIN. PASSING MARKS	MAX. MARKS		TOTAL	MIN. PASSING MARKS
EXTERNAL	INTERNAL	TOTAL	MIN. PASSING MARKS													
THEORY																
01	7KS01	Digital Signal Processing	4	-	-	4	4	3	80	20	100	40	-	-	-	-
02	7KS02	Computer Networks	4	-	-	4	4	3	80	20	100	40	-	-	-	-
03	7KS03	Design & Analysis of Algorithms	4	-	-	4	4	3	80	20	100	40	-	-	-	-
04	7KS04	Object Oriented Analysis & Design	4	-	-	4	4	3	80	20	100	40	-	-	-	-
05	7KS05	Professional Elective I*	4	-	-	4	4	3	80	20	100	40	-	-	-	-
PRACTICALS / DRAWING / DESIGN																
06	7KS06	Digital Signal Processing Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
07	7KS07	Design & Analysis of Algorithms Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
08	7KS08	Object Oriented Analysis & Design Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
09	7KS09	Project & Seminar	-	-	2	2	4	-	-	-	-	-	-	50	50	25
TOTAL			20	-	8	28	27			500					200	

TOTAL 700

Professional Elective I\* (i) Computer Graphics (ii) Multimedia Technologies (iii) Web Engineering (iv) Human Computer Interface

**Semester :EIGHTH**

THEORY																
Sr. No.	Subject Code	Subject	Lecture	Tutorial	P/D	Total HOURS/WEEK	CREDITS	DURATION OF PAPER (Hr.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESMENT	TOTAL	MIN. PASSING MARKS	EXTERNAL	INTERNAL	TOTAL	MIN. PASSING MARKS
01	8KS01	Artificial Intelligence	3	-	-	3	3	3	80	20	100	40	-	-	-	-
02	8KS02	Embedded Systems	4	-	-	4	4	3	80	20	100	40	-	-	-	-
03	8KS03	Software Engineering	3	-	-	3	3	3	80	20	100	40	-	-	-	-
04	8KS04	Professional Elective II*	3	-	-	3	3	3	80	20	100	40	-	-	-	-
PRACTICALS / DRAWING / DESIGN																
05	8KS05	Artificial Intelligence -Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
06	8KS06	Embedded Systems -Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
07	8KS07	Project & Seminar			6	6	12						75	75	150	75
TOTAL			13	-	10	23	27			400					250	

TOTAL 650

Professional Elective II\* (i) Distributed Computing (ii) Mobile Computing (iii) Soft Computing (iv) Network Security

will be shown by the grade. The students getting 'D' grade fails in the paper.

### Scheme of Examination of Dissertation

Assessment of papers M.B.A. 307 & M.B.A.407 i.e. Dissertation shall be done by internal and external examiners out of 100 marks distributed as 65 marks for dissertation and 35 marks for viva voce . The viva shall be conducted both by internal and external examiners

\*\* Marks obtained in internal assessment papers will be converted in grades as per Table No. 1

The student getting 'D' grade will be declared as 'Fail' in the Dissertation.

17. A student appearing for M.B.A.Semester III & IV Examination will have to pay an additional fee of Rs.500/- for Dissertation in addition to usual Examination fees.
19. Examinees successful at the Semester-I, II & III Examination shall be entitled to receive a Certificate signed by the Registrar, and those successful at the Semester-IV Examination shall on payment of the prescribed fees, receive a Degree in the prescribed form signed by the Vice-Chancellor.

## Appendix-A Master of Business Administration Course Semester-I

Subject Code	Name of Subject	Hrs/Week	Credits	Examination Scheme							
				Duration of Exam Hours	External		Internal		Total Max Mark	Min. Agg. Mark	
					Max. Marks	Min. Pass Marks	Max. Marks	Min. Pass Marks			
MBA/101	Principles And Practice of Management	3	4	3	70	35	30	15	100	350	
MBA/102	Managerial Economics	3	4	3	70	35	30	15	100		
MBA/103	Managerial Skill Development	3	4	3	70	35	30	15	100		
MBA/104	Accounting for Managers	3	4	3	70	35	30	15	100		
MBA/105	Organisation Behaviour and Effectiveness	3	4	3	70	35	30	15	100		
MBA/106	Business Ethics	3	4	3	70	35	30	15	100		
MBA/107	Management Information System	3	4	3	70	35	30	15	100		
MBA/108	Quantitative Methods	3	4	—	—	—	Internal Assessment Paper				
<b>Total</b>		<b>24</b>	<b>32</b>						<b>700</b>		<b>350</b>

## Appendix-B Master of Business Administration Course Semester- II

Subject Code	Name of Subject	Hrs/Week	Credits	Examination Scheme							
				Duration of Exam Hours	External		Internal		Total Max Mark	Min. Agg. Mark	
					Max. Marks	Min. Pass Marks	Max. Marks	Min. Pass Marks			
MBA/201	Business Environment	3	4	3	70	35	30	15	100	350	
MBA/202	Research Methodology	3	4	3	70	35	30	15	100		
MBA/203	Human Resources Management	3	4	3	70	35	30	15	100		
MBA/204	Financial Management	3	4	3	70	35	30	15	100		
MBA/205	Marketing Management	3	4	3	70	35	30	15	100		
MBA/206	Production and Operations Management	3	4	3	70	35	30	15	100		
MBA/207	Logistics Management	3	4	3	70	35	30	15	100		
MBA/208	Management Science	3	4	—	—	—	Internal Assessment Paper				
<b>Total</b>		<b>24</b>	<b>32</b>						<b>700</b>		<b>350</b>

**Appendix-C  
Semester- III**

Subject Code	Name of Subject	Hrs/ Week	Credits	Examination Scheme						Min. Agg. Mark	
				Duration of Exam Hours	External		Internal		Total Max Mark		
					Max. Marks	Min. Pass Marks	Max. Marks	Min. Pass Marks			
MBA/301	Business Law	3	4	3	70	35	30	15	100	350	
MBA/3101/F	Indian Financial System	3	4	3	70	35	30	15	100		
MBA/3102/F	Banking System	3	4	3	70	35	30	15	100		
MBA/3103/F	Working Capital Management	3	4	3	70	35	30	15	100		
MBA/3104/F	International Financial Management	3	4	3	70	35	30	15	100		
MBA/3105/F	Investment Science	3	4	3	70	35	30	15	100		
MBA/3106/F	Risk Management	3	4	3	70	35	30	15	100		
MBA/3201/M	International Business Strategy	3	4	3	70	35	30	15	100		
MBA/3202/M	Sales & Distribution Management	3	4	3	70	35	30	15	100		
MBA/3203/M	Consumer Behavior	3	4	3	70	35	30	15	100		
MBA/3204/M	Advertising Management	3	4	3	70	35	30	15	100		
MBA/3205/M	Brand Management	3	4	3	70	35	30	15	100		
MBA/3206/M	Agriculture Marketing	3	4	3	70	35	30	15	100		
MBA/3301/H	Management of Industrial Relations	3	4	3	70	35	30	15	100		
MBA/3302/H	Human Relations & Legal Framework	3	4	3	70	35	30	15	100		
MBA/3303/H	Compensation Management	3	4	3	70	35	30	15	100		
MBA/3304/H	Human Resource Development	3	4	3	70	35	30	15	100		
MBA/3305/H	Management of Training & Development	3	4	3	70	35	30	15	100		
MBA/3306/H	Performance Management	3	4	3	70	35	30	15	100		
MBA/3401/P	Purchasing And Materials Management	3	4	3	70	35	30	15	100		
MBA/3402/P	Production Planning And Control	3	4	3	70	35	30	15	100		
MBA/3403/P	Ergonomics	3	4	3	70	35	30	15	100		
MBA/3404/P	World Class Manufacturing	3	4	3	70	35	30	15	100		
MBA/3405/P	Principles and Practices of Safety Management	3	4	3	70	35	30	15	100		
MBA/3406/P	Costing for Production	3	4	3	70	35	30	15	100		
MBA/307	<b>Dissertation</b>	3	4	—	—	—	<b>Internal Assessment</b>				
<b>Total</b>		<b>24</b>	<b>32</b>						<b>700</b>		<b>350</b>

**Appendix-D  
Semester- IV**

Subject Code	Name of Subject	Hrs/ Week	Credits	Examination Scheme						Min. Agg. Mark	
				Duration of Exam Hours	External		Internal		Total Max Mark		
					Max. Marks	Min. Pass Marks	Max. Marks	Min. Pass Marks			
MBA/401	Strategic Management	3	4	3	70	35	30	15	100	350	
MBA/4101/CGF	Financial Decision Analysis	3	4	3	70	35	30	15	100		
MBA/4102/CGF	Security Analysis And Portfolio Management	3	4	3	70	35	30	15	100		
MBA/4103/CGF	Financial Derivatives	3	4	3	70	35	30	15	100		
MBA/4104/CGF	Management Of Financial Services	3	4	3	70	35	30	15	100		
MBA/4105/CGF	Foreign Exchange Market	3	4	3	70	35	30	15	100		
MBA/4106/CGF	Insurance Management	3	4	3	70	35	30	15	100		
MBA/4201/SM	Sales & Promotion Management	3	4	3	70	35	30	15	100		
MBA/4202/SM	Marketing Of Services	3	4	3	70	35	30	15	100		
MBA/4203/SM	Marketing Of Social Services	3	4	3	70	35	30	15	100		
MBA/4204/SM	Retail Marketing	3	4	3	70	35	30	15	100		
MBA/4205/SM	Rural Marketing	3	4	3	70	35	30	15	100		
MBA/4206/SM	International Marketing	3	4	3	70	35	30	15	100		
MBA/4401/OB	Human Behavior At Work Place	3	4	3	70	35	30	15	100		
MBA/4402/OB	Organization Development	3	4	3	70	35	30	15	100		
MBA/4403/OB	Management Of Group Process	3	4	3	70	35	30	15	100		
MBA/4404/OB	Corporate Leadership Management	3	4	3	70	35	30	15	100		
MBA/4405/OB	Knowledge Management	3	4	3	70	35	30	15	100		
MBA/4406/OB	International HRM	3	4	3	70	35	30	15	100		
MBA/4401/OM	Service Operations Management	3	4	3	70	35	30	15	100		
MBA/4402/OM	Applied Operations Research	3	4	3	70	35	30	15	100		
MBA/4403/OM	Transportation Management	3	4	3	70	35	30	15	100		
MBA/4404/OM	Total Quality Management	3	4	3	70	35	30	15	100		
MBA/4405/OM	Industrial Health And Disaster Management	3	4	3	70	35	30	15	100		
MBA/4406/OM	Project Management	3	4	3	70	35	30	15	100		
MBA/407	<b>Dissertation</b>	3	4	3	—	—	<b>Internal Assessment</b>				
<b>Total</b>		<b>24</b>	<b>32</b>						<b>700</b>		<b>350</b>

**Specialization:-**

A candidate can offer any one specialization from amongst the available electives for Sem III given in Appendix 'C' for Semester -III.

A candidate can offer any one specialization from amongst the available electives for Sem IV given in Appendix 'D' for Semester -IV.

**The Specialization Codes and Titles are tabulated below**

Sr. No.	Semester	Specialization Code	Title of pecialization
1	III	F	Financial Management
2		M	Marketing Management
3		H	Human Resource Management
4		P	Production Management
5	IV	CGF	Corporate & Global Finance
6		SM	Services Marketing
7		OB	Organizational Behavior
8		OM	Operations Management

Sd/-

Amravati.  
Date:24/5/2011

(Dr. M.K.Khedkar)  
Vice-Chancellor

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**DIRECTION**

No. 24/2012

Date : 6/6/2012

Subject : **Corrigendum to Direction No. 26 of 2011 in respect of Examinations leading to the Degree of Master of Business Administration (M.B.A.) (Bi-Annual pattern) (Two year course) .**

Whereas, Direction No. 26 of 2011 in respect of Examinations leading to the Degree of Master of Business Administration (M.B.A.) (Bi-Annual pattern) (Two year course) is in existence in the University.

**AND**

Whereas, the Academic Council in its meeting held on 5/5/2012 vide Item No.74 (A) has resolved to accept the revised tables

providing grade, percentage of marks and grade points and class/division for M.B.A. examinations.

**AND**

Whereas, the Academic Council in its meeting held on 5/5/2012 vide Item No.74 (B) has resolved to accept the corrections in subject code of MBA/307, MBA/4401/OB, 4402/OB, 4403/OB, 4404/OB, 4405/OB, MBA/4406/OB, and MBA/407, in the scheme of examinations of M.B.A. Semester-III & IV respectively.

**AND**

Whereas, the Academic Council in its meeting held on 5/5/2012 has resolved to refer the matter to the Ordinance Committee to make amendments in the respective Ordinance/Regulation.

**AND**

Whereas, the revised scheme for providing Grade and Grade points is to be implemented from the academic session 2011-2012.

**AND**

Whereas, the revised scheme of examinations for M.B.A. Semester-III & IV is to be implemented from the academic session 2012-13.

**AND**

Whereas, Hon'ble Vice Chancellor has accepted the scheme of examination and syllabi of additional electives namely Pharmaceutical Management, Sports Management, and Health Care Management of Semester-III & IV of M.B.A. course on behalf of Faculty of Commerce and Academic Council under sub section (7) of section 14 of the Maharashtra Universities Act.1994 as recommended by the Board of Studies in Business Management, which is to be implemented from the academic session 2012-2013.

**AND**

Whereas, the matter for changing the scheme of examinations is required to be regulated by the Regulation, and making amendment in respective Regulation is time consuming process.

**AND**

Whereas, the scheme of examination along with syllabi of M.B.A. Semester-III&IV is to be made available for the academic session 2012-2013.

Now, therefore, I, Dr. M.K. Khedkar, Vice-Chancellor, Sant Gadge Baba Amravati University, Amravati in exercise of the powers conferred upon me under sub section (8) of section 14 of the Maharashtra Universities Act, 1994, do hereby direct as under-

- 1) This Direction may be called “Corrigendum to Direction No. 26 of 2011 in respect of Examinations leading to the Degree of Master of Business Administration (M.B.A.) (Bi-Annual pattern) (Two year course)”.
- 2) This direction shall come into force from the date of its issuance.
- 3) The following corrections be made in Direction No. 26 of 2011 for rectifying the Direction which are to be implemented from the academic session 2011-12 as follows-

“The present tables i.e. Table No.1 and Table No.2 appearing under Para 11 of Direction No. 26 of 2011 be substituted by the tables as given in **Appendix-A**.

- 4) The following new optional subjects along with scheme of teaching, credit, and examination be added under the subject code MBA/3406/P in the scheme of examination of M.B.A. Semester-III under the Appendix-C which was appended with the Direction No. 26 of 2011, which is to be implemented from the examination of Winter-2012.

Subject Code	Name of Subject	Hrs/ Week	Credits	Examination Scheme					Total Max Marks
				Duration of Exam Hours	External		Internal		
					Max. Marks	Min. Pass Marks	Max. Marks	Min. Pass Marks	
MBA/4501/HC	Health Care Management & Administration	3	4	3	70	35	30	15	100
MBA/4502/HC	Human Resource Management for Health Care	3	4	3	70	35	30	15	100
MBA/4503/HC	Management of Clinical Services	3	4	3	70	35	30	15	100
MBA/4504/HC	Economics of Health Care Management	3	4	3	70	35	30	15	100
MBA/4505/HC	Information Technology in Health Care	3	4	3	70	35	30	15	100
MBA/4506/HC	Hospital Support Services	3	4	3	70	35	30	15	100
MBA/3501/PH	Brand Promotion & Marketing in Pharmaceutical Industry	3	4	3	70	35	30	15	100
MBA/3502/PH	Customer Behaviour in Pharmaceutical Industry	3	4	3	70	35	30	15	100
MBA/3503/PH	Production Management in Pharmaceutical Industry	3	4	3	70	35	30	15	100
MBA/3504/PH	Material Management in Pharmaceutical Industry	3	4	3	70	35	30	15	100
MBA/3505/PH	Sales & Distribution Management in Pharmaceutical Industry	3	4	3	70	35	30	15	100
MBA/3506/PH	Pharmaceutical Regulatory Environment	3	4	3	70	35	30	15	100
MBA/3601/SP	Fundamentals of Management of Sports	3	4	3	70	35	30	15	100
MBA/3602/SP	Human Resource Management for Sports	3	4	3	70	35	30	15	100
MBA/3603/SP	Sports Marketing	3	4	3	70	35	30	15	100
MBA/3604/SP	Financial Management And Economics for Sports	3	4	3	70	35	30	15	100
MBA/3605/SP	Sports Facilities Management	3	4	3	70	35	30	15	100
MBA/3606/SP	Sports Media Management	3	4	3	70	35	30	15	100

- 5) The subject code of MBA/307 in the scheme of examination of M.B.A. Semester –III under the Appendix-C which was appended with the Direction No. 26 of 2011 be substituted by the word & figure MBA/308.
- 6) The subject code MBA/4401/OB, 4402/OB, 4403/OB, 4404/OB, 4405/OB, MBA/4406/OB in the scheme of examination of M.B.A. Semester-IV under the Appendix-D which was appended with the Direction No. 26 of 2011 be substituted by the words & figures MBA/4301/OB, 4302/OB, 4303/OB, 4304/OB, 4305/OB, MBA/4306/OB respectively.
- 7) The following new optional subjects along with scheme of teaching, credit, and examination be added under the subject code MBA/4406/OM in the scheme of examination of M.B.A. Semester-IV under the Appendix-D which was appended with the Direction No. 26 of 2011, which is to be implemented from the examination of Summer-2013.

Subject Code	Name of Subject	Hrs/ Week	Credits	Examination Scheme					
				Duration of Exam Hours	External		Internal		Total Max Marks
					Max. Marks	Min. Pass Marks	Max. Marks	Min. Pass Marks	
MBA/4501/HC	Health Care Management & Administration	3	4	3	70	35	30	15	100
MBA/4502/HC	Human Resource Management for Health Care	3	4	3	70	35	30	15	100
MBA/4503/HC	Management of Clinical Services	3	4	3	70	35	30	15	100
MBA/4504/HC	Economics of Health Care Management	3	4	3	70	35	30	15	100
MBA/4505/HC	Information Technology in Health Care	3	4	3	70	35	30	15	100
MBA/4506/HC	Hospital Support Services	3	4	3	70	35	30	15	100

- 8) The subject code of MBA/407 in the scheme of examination of M.B.A. Semester –IV under the Appendix-D which was appended with the Direction No. 26 of 2011 be substituted by the word & figure MBA/408.

Amravati. Sd/-  
(Dr.M.K.Khedkar)

Dated: 5/6/2012

Vice-Chancellor

# SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE



Official Publication of Sant Gadge Baba Amravati University

PART- TWO

(Extra-Ordinary)

Tuesday, the 22th September, 2020

NOTIFICATION

No. - 61/2020

Date : 22.9.2020

**Subject :- Implementation of new syllabi of Semester III to VI of Master in Computer Application (Three Year Degree Course.... Semester Pattern ) as per Choice Based Credit System in the Faculty of Science & Technology from the session 2020-2021 and onwards in phase wise manner ...**

It is notified for general information of all concerned that the authorities of the University have accepted to implement the new syllabi as per AICTE Guidelines of Master in Computer Application (Three Year Degree Course... Semester Pattern ..Choice Based Credit System ) Course of Semester III & IV from the academic session 2020-2021 and Semester V & VI from the academic session 2021-2022 & onwards in phase wise manner as per 'Appendix – A' .

Sd/-  
(Dr.T.R.Deshmukh)  
Registrar  
Sant Gadge Baba Amravati University

**Appendix – A**

## SYLLABUS OF MCA SEM III TO VI [C.B.C.S.]

### SEMESTER III

**Course Code** MCA19201  
**Course Name** JAVA PROGRAMMING  
**Credits** 4  
**Course Outcomes**

1. Remember and know the use an integrated development environment to write, compile, run, and test simple Java programs and get knowledge of the structure and model of the Java programming language.
2. Understand Java as an Object oriented language and write programs that solve real-world problems.
3. Understand exception handling and multithreading in Java and apply the concepts to real problems
4. Understand Streams in Java and apply them to File handling, understand Generics
5. Understand Collection Frameworks and apply it for problem solving, design simple GUI based applications using Swing
6. Understand Event handling and analyze and apply the knowledge to develop small GUI based applications.

Units	Contents	Total Hrs
I	<b>Java Basics:</b> Program Components, Compilation cycle. Data types and Variables, Operators: Arithmetic, relational, Assignment, Shift operators. Control structures: if, nested if, switch, while,do-while, for loop, Enhanced for loops.	9
II	<b>Concepts of OOP:</b> Introduction to classes, class fundamentals, declaring objects, methods, constructor, <b>this</b> keyword, access control, Inheritance, Polymorphism, Abstract classes and Interfaces, Packages String and String Buffer classes, Math class. Arrays: Basics, One - & Multi-dimensional, Array of Objects, Passing array to methods.	10
III	<b>Exception handling:</b> Exception types, Built-in Exceptions, checked and unchecked Exceptions, using try and catch, throw, throws, finally clauses, multiple catch clauses, <b>Multithreaded programming:</b> Java thread model, creating a thread, creating multiple threads, thread priorities & synchronization.	9

**SEMESTER VI**

<b>Course code</b>	<b>MCA19310</b>
<b>Course Name</b>	<b>INDUSTRY PROJECT AND INTERNSHIP/START-UP</b>
<b>Credits</b>	<b>18</b>

**Guidelines :**

1. Students may opt either Industrial Project or Internship or Start-up.
2. Industrial Project: It is a software development project assigned by any registered industry/organization to the student. Student may complete the project at industry/organization or from home. Student shall submit the completion/implementation certificate issued by the Industry/organization. Students should take prior approval from the institute in this regard.
3. Internship: In the internship, students shall apply direct/through institute to the Industry/Organization for internship or take use of 'Intershala', an initiative of AICTE. The internship is placement of students in the industry/organization for which they are entitled to receive stipend. Students shall submit the appointment letter at the start of the internship and completion certificate at the end of the session well before the final examination.
4. Start-up: Students may undertake startup activity which is recognized by the Institute. Institute shall incubate the start-up using the system available at institute level and assign a mentor/guide to the student. The necessary support may be extended to the students for this activity. Students shall submit their proposal well in advance to the institute and Institute should grant its approval through available mechanism at Institute level. The registration of start-up and business proposal shall be the essential documents for this activity. Activity shall be evaluated on the basis of its profit ratio.
5. In all the three above activities, students need to submit complete Project Report to the Institute well before the final examination.

<b>Course code</b>	<b>MCA19309</b>
<b>Course Name</b>	<b>Seminar / Presentation</b>
<b>Credits</b>	<b>06</b>

**Guidelines :**

1. Institute shall assign mentor/guide to each student.
2. Student shall submit synopsis approved by the mentor/guide.
3. Institute shall approve the seminar topic.
4. Students shall prepare seminar report and presentation with the help of guide and submit seminar report and presentation approved by the guide well in advance to conduct final presentation/examination.
5. Students may take seminar topic based on new technology, case study, success story of start-up he/she has undertaken in the 'Industrial Project/Internship/Start-up activity.'

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## APPENDIX-A

**TWO YEAR POST GRADUATE DEGREE COURSE IN MASTER OF ENGINEERING (FULL TIME)**  
**(STRUCTURAL ENGINEERING)**  
**CREDIT GRADE SYSTEM**  
**FIRST SEMESTER**

Sr. No.	Subject Code	Subject	Teaching Scheme					Examination Scheme									
			Hours/Week					Theory					Practical				
			Lecture	Tutorial	P/D	Total Hours/Week	Credits	Theory Duration of Paper (Hr.)	Max. Marks Theory Paper	Max. Marks College Assessment	Total	Min. Passing Marks Theory Paper	Max. Marks Subject	Max. Marks External	Max. Marks Internal	Total	Min. Passing Marks
1	1SFSE1	Introduction to Earthquake Engineering	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
2	1SFSE2	Theory of Plates and Shells	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
3	1SFSE3	Computer Methods of Structural Analysis	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
4	1SFSE4	Structural Dynamics	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
5	1SFSE5	Earthquake Resistant Design of Reinforced Concrete Structures	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
6	1SFSE6	Earthquake Resistant Design of Reinforced Concrete Structures - Laboratory	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
7	1SFSE7	Computer Aided Analysis & Design of Structures – Laboratory	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
			20	0	4	24	23				500						100
														TOTAL		600	
<b>SECOND SEMESTER</b>																	
1	2SFSE1	Finite Element Method	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
2	2SFSE2	Advanced Design of Steel Structures	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
3	2SFSE3	Repairs & Retrofitting of Structures	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
4	2SFSE4	Design of Prestressed Concrete structures	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
5	2SFSE5	Elective*	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
6	2SFSE6	Adv. Design of Steel Structures - Laboratory	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
7	2SFSE7	Design of Prestressed Concrete Structures - Laboratory	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
			20	0	4	24	22				500						100
														TOTAL		600	

Elective-II : 1) Substructures and Foundation Design (2) Earthquake Resistant Design of Bridges and Dams (3) Theory of Elasticity and Stability (4) Design of Environmental Structures

**THIRD SEMESTER**

Sr.	Subject	Subject	Lecture	Tutorial	P/D	Total	Credits	Internal Marks	Total	Min. Passing Marks
1	3SFSE1	SEMINAR AND DISSERTATION	-	-	6	6	15	100	100	50
			-	-	6	6	15		100	
<b>TOTAL : 100</b>										

**FOURTH SEMESTER**

Sr.	Subject	Subject	Lecture	Tutorial	P/D	Total	Credits	External Marks	Internal Marks	Total
1	4SFSE1	SEMINAR AND DISSERTATION	-	-	12	12	30	200	100	300
		<b>TOTAL</b>	-	-	12	12	30			300
<b>GRAND TOTAL</b>										<b>1600</b>

**Semester III**

**Seminar :** Seminar to be delivered on work completed during third semester. 50 internal marks out of 100 will be assessed by a Committee consisting of Head of Department, dissertation guide and subject expert appointed by Principal of the College / Head of University Department. Remaining 50 internal marks will be given by guide based on performance.

**Dissertation :** Title of the dissertation work to be submitted to the University on or before 15th Sept. (for regular examination) and 15th of February (for supplementary exam.).

**Semester IV**

**Seminar :** to be delivered on the complete work of dissertation. 50 internal marks out of 100 will be assessed by a Committee consisting of Head of Department, dissertation guide and subject expert appointed by Principal of the College / Head of University Department. Remaining 50 internal marks will be given by guide based on performance.

**Note :** Thesis of dissertation work must be submitted to the University on or before 30th April (for regular exam. ) and 30th November ( for supplementary exam.). Thesis of Dissertation work be submitted with late fee to the University upto 31 May (for regular exam.) and 31st December (for supplementary exam.). The late fee shall be charged as in case of Examination form.

**Notes :**

1. Student should fill the examination form in the beginning of 3rd semester jointly for 3rd & 4th semester.
2. Single marksheet for 3rd & 4th semester together will be given to the student.

**TWO YEAR POST GRADUATE DEGREE COURSE IN MASTER OF ENGINEERING (FULL TIME)**  
**MECHANICAL ENGINEERING (CAD/CAM)**  
**CREDIT GRADE SYSTEM**  
**FIRST SEMESTER**

Sr. No.	Subject Code	Subject	Teaching Scheme				Credits	Examination Scheme									
			Hours/Week					Theory					Practical				
			Lecture	Tutorial	P/D	Total Hours/Week		Theory Duration of Paper (Hr.)	Max. Marks Theory Paper	Max. Marks College Assessment	Total	Min. Passing Marks Theory Paper	Min. Passing Marks Subject	Max. Marks External	Max. Marks Internal	Total	Min. Passing Marks
1	1MCC1	Computer Aided Design	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
2	1MCC2	Computer Aided Manufacturing	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
3	1MCC3	Computer Assisted Production Management	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
4	1MCC4	Mechatronics	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
5	1MCC5	Elective-I	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
6	1MCC6	Computer Aided Design-LAB.	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
7	1MCC7	Computer Aided Manufacturing-LAB.	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
			20	0	4	24	22	-	-	-	500					100	
<b>TOTAL</b>															<b>600</b>		

Elective - I : 1) Concurrent Engineering 2) Engineering Experimental Techniques 3) Management Information Systems 4) Optimization Techniques 5) Design of Manufacturing Assembly and Environment

**SECOND SEMESTER**

Sr. No.	Subject Code	Subject	Teaching Scheme				Credits	Examination Scheme									
			Hours/Week					Theory					Practical				
			Lecture	Tutorial	P/O	Total Hours/Week		Theory Duration of Paper (Hr.)	Max. Marks Theory Paper	Max. Marks College Assessment	Total	Min. Passing Marks Theory Paper	Min. Passing Marks Subject	Max. Marks External	Max. Marks Internal	Total	Min. Passing Marks
1	2MCC1	Finite Element Analysis	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
2	2MCC2	Simulation Theory & Applications	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
3	2MCC3	Robotics & Robot Applications	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
4	2MCC4	Industrial Product Design	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
5	2MCC5	Elective-II	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
6	2MCC6	Finite Element Analysis-LAB.	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
7	2MCC7	Simulation Theory & Applications V-LAB.	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
			20	0	4	24	22	-	-	-	500					100	
<b>TOTAL</b>															<b>600</b>		

Elective-II : 1) Flexible Manufacturing System 2) Virtual Manufacturing 3) Industrial Automation 4) Rapid Prototyping and Tooling

**THIRD SEMESTER**

Sr.	Subject	Subject	Lecture	Tutorial	P/D	Total	Credits	Internal Marks	Total	Min. Passing Marks
1	3MCCS	SEMINAR AND DISSERTATION	-	-	6	6	15	100	100	50
			-	-	6	6	15		100	
									<b>TOTAL</b>	<b>100</b>

**FOURTH SEMESTER**

Sr.	Subject	Subject	Lecture	Tutorial	P/D	Total	Credits	External Marks	Internal Marks	Total
1	4MCCP	SEMINAR AND DISSERTATION	-	-	12	12	30	200	100	300
<b>TOTAL</b>			-	-	12	12	30			300

GRAND TOTAL

1600

**Semester III**

**Seminar :** Seminar to be delivered on work completed during third semester. 50 internal marks out of 100 will be assessed by a Committee consisting of Head of Department, dissertation guide and subject expert appointed by Principal of the College / Head of University Department. Remaining 50 internal marks will be given by guide based on performance.

**Dissertation :** Title of the dissertation work to be submitted to the University on or before 15th Sept. (for regular examination) and 15th of February (for supplementary exam.).

**Semester IV**

**Seminar :** to be delivered on the complete work of dissertation. 50 internal marks out of 100 will be assessed by a Committee consisting of Head of Department, dissertation guide and subject expert appointed by Principal of the College / Head of University Department. Remaining 50 internal marks will be given by guide based on performance.

**Note :** Thesis of dissertation work must be submitted to the University on or before 30th April (for regular exam. ) and 30th November ( for supplementary exam.). Thesis of Dissertation work be submitted with late fee to the University upto 31 May (for regular exam.) and 31st December (for supplementary exam.). The late fee shall be charged as in case of Examination form.

**Notes :**

1. Student should fill the examination form in the beginning of 3rd semester jointly for 3rd & 4th semester.
2. Single marksheet for 3rd & 4th semester together will be given to the student.

**THIRD SEMESTER**

Sr.	Subject	Lecture	Tutorial	P/D	Total	Credits	Internal Marks	Total	Min. Passing Marks
1	3UMEF1 SEMINAR AND DISSERTATION	-	-	6	6	15	100	100	50
		-	-	6	6	15		100	
<b>TOTAL</b>									<b>: 100</b>

**FOURTH SEMESTER**

Sr.	Subject	Lecture	Tutorial	P/D	Total	Credits	External Marks	Internal Marks	Total
1	4UMEF1 SEMINAR AND DISSERTATION	-	-	12	12	30	200	100	300
	<b>TOTAL</b>	-	-	12	12	30			300
<b>GRAND TOTAL</b>									1600

**Semester III**

**Seminar :** Seminar to be delivered on work completed during third semester. 50 internal marks out of 100 will be assessed by a Committee consisting of Head of Department, dissertation guide and subject expert appointed by Principal of the College / Head of University Department. Remaining 50 internal marks will be given by guide based on performance.

**Dissertation :** Title of the dissertation work to be submitted to the University on or before 15th Sept. (for regular examination) and 15th of February (for supplementary exam.).

**Semester IV**

**Seminar :** to be delivered on the complete work of dissertation. 50 internal marks out of 100 will be assessed by a Committee consisting of Head of Department, dissertation guide and subject expert appointed by Principal of the College / Head of University Department. Remaining 50 internal marks will be given by guide based on performance.

**Note :** Thesis of dissertation work must be submitted to the University on or before 30th April (for regular exam. ) and 30th November ( for supplementary exam.). Thesis of Dissertation work be submitted with late fee to the University upto 31 May (for regular exam.) and 31st December (for supplementary exam.). The late fee shall be charged as in case of Examination form.

**Notes :**

1. Student should fill the examination form in the beginning of 3rd semester jointly for 3rd & 4th semester.
2. Single marksheet for 3rd & 4th semester together will be given to the student.

**Two Year Post Graduate Degree Course in Master of Engineering (Part Time / Full Time)**  
**Digital Electronics**

**Appendix - A**

<b>First Semester</b>																	
Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS	CREDITS	THEORY				PRACTICAL					
			Lecture	Tutorial	Practical			DURATION OF PAPER (Hr.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESSMENT	TOTAL	MIN. PASSING MARKS	MAX. MARKS		TOTAL	MIN. PASSING MARKS	
										THEORY PAPER	SUBJECT	EXTERNAL	INTERNAL				
01	1UMEF1	DIGITAL INSTRUMENTATION	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
02	1UMEF2	ADVANCED DIGITAL SIGNAL PROCESSING	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
03	1UMEF3	ELECTIVE-I	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
04	1UMEF4	DIGITAL COMMUNICATION TECHNIQUES	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
05	1UMEF5	EMBEDED SYSTEM DESIGN	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
06	1UMEF6	DIGITAL COMMUNICATION TECHNIQUES-LAB.	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
07	1UMEF7	EMBEDED SYSTEM DESIGN-LAB.	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
TOTAL			20	0	4	24	22				500					100	
<b>TOTAL</b>														<b>600</b>			

Elective - I : 1) Modern Electronic Design Techniques 2) RF System Design 3) Computer Communication Network

<b>Second Semester</b>																	
Sr. No.	Subject Code	Subject	TEACHING SCHEME					EXAMINATION SCHEME									
			HOURS / WEEK			Total HOURS	CREDITS	THEORY				PRACTICAL					
			Lecture	Tutorial	Practical			DURATION OF PAPER (Hr.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESSMENT	TOTAL	MIN. PASSING MARKS	MAX. MARKS		TOTAL	MIN. PASSING MARKS	
										THEORY PAPER	SUBJECT	EXTERNAL	INTERNAL				
01	2UMEF1	DIGITAL IMAGE PROCESSING	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
02	2UMEF2	CMOS VLSI DESIGN	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
03	2UMEF3	PARALLEL COMPUTING	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
04	2UMEF4	ARTIFICIAL INTELLIGENT SYSTEMS	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
05	2UMEF5	ELECTIVE-II	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
06	2UMEF6	DIGITAL IMAGE PROCESSING-LAB.	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
07	2UMEF7	CMOS VLSI DESIGN-LAB.	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
TOTAL			20	0	4	24	22				500					100	
<b>TOTAL</b>														<b>600</b>			

Elective - II : 1) Bio-Informatics 2) Micro Electro Mechanical System 3) High Speed Digital System Design

## Appendix - B

<b>Third Semester</b>										
Sr. No.	Subject Code	Subject	Lecture	Tutorial	Practical	Total	CREDITS	INTERNAL MARKS	TOTAL	MIM. PASSING MARKS
01	<b>3UMEF1</b>	SEMINAR AND DISSERTATION	-	-	6	6	15	100	100	50
		TOTAL	-	-	<b>6</b>	<b>6</b>	<b>15</b>		<b>100</b>	
									TOTAL	100

  

<b>Fourth Semester</b>											
Sr. No.	Subject Code	Subject	Lecture	Tutorial	Practical	Total	CREDITS	EXTERNAL MARKS	INTERNAL MARKS	TOTAL	MIM. PASSING MARKS
01	<b>4UMEF1</b>	SEMINAR AND DISSERTATION	-	-	12	12	30	200	100	300	150
		TOTAL	-	-	<b>12</b>	<b>12</b>	<b>30</b>			<b>300</b>	
									TOTAL	300	
										<b>GRAND TOTAL 1600</b>	

## Semester III

Seminar : Seminar to be delivered on work completed during third semester. 50 internal marks out of 100 will be assessed by a Committee consisting of Head of Department, dissertation guide and subject expert appointed by Principal of the College / Head of University Department. Remaining 50 internal marks will be given by guide based on performance.

Dissertation : Title of the dissertation work to be submitted to the University on or before 15th Sept. (for regular examination) and 15th of February (for supplementary exam.).

## Semester IV

Seminar : to be delivered on the complete work of dissertation. 50 internal marks out of 100 will be assessed by a Committee consisting of Head of Department, dissertation guide and subject expert appointed by Principal of the College / Head of University Department. Remaining 50 internal marks will be given by guide based on performance.

Note : Thesis of dissertation work must be submitted to the University on or before 30th April (for regular exam. ) and 30th November ( for supplementary exam.). Thesis of Dissertation work be submitted with late fee to the University upto 31 May (for regular exam.) and 31st December (for supplementary exam.). The late fee shall be charged as in case of Examination form.

Notes : 1. Student should fill the examination form in the beginning of III semester jointly for III & IV semester.

2. Single marksheet for III & IV semester together will be given to the student.

**Two Year Post Graduate Degree Course in Master of Engineering (Full-Time)  
Electronics and Telecommunication Engineering**

Appx  
**Appendix - A**

<b>First Semester</b>																	
			<b>TEACHING SCHEME</b>				<b>EXAMINATION SCHEME</b>										
Sr. No.	Subject Code	Subject	<b>HOURS / WEEK</b>			<b>Tota HOURS</b>	<b>CREDITS</b>	<b>THEORY</b>					<b>PRACTICAL</b>				
			<b>Lecture</b>	<b>Tutorial</b>	<b>Practical</b>			<b>DURATION OF PAPER (Hr.)</b>	<b>MAX. MARKS THEORY PAPER</b>	<b>MAX. MARKS COLLEGE ASSESMENT</b>	<b>TOTAL</b>	<b>MIN. PASSING MARKS</b>		<b>MAX. MARKS</b>		<b>TOTAL</b>	<b>MIN. PASSING MARKS</b>
									<b>THEORY PAPER</b>	<b>SUBJECT</b>	<b>EXTERNAL</b>	<b>INTERNAL</b>					
01	1ENTC1	Advanced Optical Communication	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
02	1ENTC2	Random Processes	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
03	1ENTC3	Digital Communication Techniques	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
04	1ENTC4	Digital Signal Processing and Applications	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
05	1ENTC5	Elective - I	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
06	1ENTC6	Lab – I (based on 1ENTC1 & 1ENTC3)	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
07	1ENTC7	Lab – II (based on 1ENTC4)	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
<b>TOTAL</b>			<b>20</b>	<b>0</b>	<b>4</b>	<b>24</b>	<b>22</b>				<b>500</b>					<b>100</b>	
<b>TOTAL</b>													<b>600</b>				

Elective - I : 1) Real Time Embedded System 2) Data Compression 3) Artificial Intelligent System 4) Cryptography & Network Security

<b>Second Semester</b>																	
			<b>TEACHING SCHEME</b>				<b>EXAMINATION SCHEME</b>										
Sr. No.	Subject Code	Subject	<b>HOURS / WEEK</b>			<b>Tota HOURS</b>	<b>CREDITS</b>	<b>THEORY</b>					<b>PRACTICAL</b>				
			<b>Lecture</b>	<b>Tutorial</b>	<b>Practical</b>			<b>DURATION OF PAPER (Hr.)</b>	<b>MAX. MARKS THEORY PAPER</b>	<b>MAX. MARKS COLLEGE ASSESMENT</b>	<b>TOTAL</b>	<b>MIN. PASSING MARKS</b>		<b>MAX. MARKS</b>		<b>TOTAL</b>	<b>MIN. PASSING MARKS</b>
									<b>THEORY PAPER</b>	<b>SUBJECT</b>	<b>EXTERNAL</b>	<b>INTERNAL</b>					
01	2ENTC1	Adaptive Signal Processing	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
02	2ENTC2	Wireless Communication	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
03	2ENTC3	Advanced Computer Networks and Programming	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
04	2ENTC4	RF & Microwave Circuit Design	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
05	2ENTC5	Elective - II	4	0	0	4	4	3	80	20	100	40	50	-	-	-	-
06	2ENTC6	Lab – I (based on 2ENTC2 & 2ENTC3)	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
07	2ENTC7	Lab – II (based on 2ENTC1 & 2ENTC4)	0	0	2	2	1	-	-	-	-	-	-	25	25	50	25
<b>TOTAL</b>			<b>20</b>	<b>0</b>	<b>4</b>	<b>24</b>	<b>22</b>				<b>500</b>					<b>100</b>	
<b>TOTAL</b>													<b>600</b>				

Elective - II : 1) Mobile Computing 2) Communication System Design 3) Optical Networks 4) Speech & Audio Processing

## Appendix - B

<b>Third Semester</b>													
Sr. No.	Subject Code	Subject	Lecture	Tutorial	Practical	Total	CREDITS	INTERNAL MARKS	TOTAL	MIM. PASSING MARKS			
01	3ENTC1	SEMINAR AND DISSERTATION	-	-	6	6	15	100	100	50			
		TOTAL	-	-	6	6	15		100				
<b>TOTAL</b>										<b>100</b>			
<b>Fourth Semester</b>													
Sr. No.	Subject Code	Subject	Lecture	Tutorial	Practical	Total	CREDITS	EXTERNAL MARKS	INTERNAL MARKS	TOTAL	MIM. PASSING MARKS		
01	4ENTC1	SEMINAR AND DISSERTATION	-	-	12	12	30	200	100	300	150		
		TOTAL	-	-	12	12	30			300			
<b>TOTAL</b>										<b>300</b>			
<b>TOTAL</b>											<b>300</b>		
<b>GRAND TOTAL 1600</b>													

## Semester III

Seminar : Seminar to be delivered on work completed during third semester. 50 internal marks out of 100 will be assessed by a Committee consisting of Head of Department, dissertation guide and subject expert appointed by Principal of the College / Head of University Department. Remaining 50 internal marks will be given by guide based on performance.

Dissertation : Title of the dissertation work to be submitted to the University on or before 15th Sept. (for regular examination) and 15th of February (for supplementary exam.).

## Semester IV

Seminar : to be delivered on the complete work of dissertation. 50 internal marks out of 100 will be assessed by a Committee consisting of Head of Department, dissertation guide and subject expert appointed by Principal of the College / Head of University Department. Remaining 50 internal marks will be given by guide based on performance.

Note : Thesis of dissertation work must be submitted to the University on or before 30th April (for regular exam. ) and 30th November ( for supplementary exam.). Thesis of Dissertation work be submitted with late fee to the University upto 31 May (for regular exam.) and 31st December (for supplementary exam.). The late fee shall be charged as in case of Examination form.

Notes : 1. Student should fill the examination form in the beginning of III semester jointly for III & IV semester.

2. Single marksheet for III & IV semester together will be given to the student.

**FOUR YEAR DEGREE COURSE IN CIVIL ENGINEERING**  
**SEMESTER PATTERN ( CREDIT GRADE SYSTEM)**  
**SEMESTER - FIFTH**

Appendix - A

			TEACHING SCHEME					EXAMINATION SCHEME								
Sr. No.	Subject Code	Subject	HOURS / WEEK			Total HOURS/WEEK	CREDITS	THEORY				PRACTICAL				
			Lecture	Tutorial	PD			DURATION OF PAPER (Hr.)	MAX. MARKS THEORY PAPER	MAX. MARKS COLLEGE ASSESSMENT	TOTAL	MIN. PASSING MARKS	MAX. MARKS		TOTAL	MIN. PASSING MARKS
				EXTERNAL	INTERNAL											
<b>THEORY</b>																
01	5CE01	Reinforced Cement Concrete-II	3	1	-	4	4	4	80	20	100	40	-	-	-	-
02	5CE02	Fluid Mechanics-II	3	1	-	4	4	3	80	20	100	40	-	-	-	-
03	5CE03	Building Planning & CAD	2	-	-	2	2	4	80	20	100	40	-	-	-	-
04	5CE04	Surveying-II	4	-	-	4	4	3	80	20	100	40	-	-	-	-
05	5FECE05	Free Elective-I	3	-	-	3	3	3	80	20	100	40	-	-	-	-
06	5CE06	Communication Skills	2	-	-	2	2	2	40	10	50	20	-	-	-	-
<b>PRACTICALS / DRAWING / DESIGN</b>																
07	5CE07	Fluid Mechanics-II - Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
08	5CE08	Building Planning & CAD-lab	-	-	4	4	2	-	-	-	-	-	25	25	50	25
09	5CE09	Surveying-II - Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
10	5CE10	Communication Skills-Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
<b>Total</b>			<b>17</b>	<b>2</b>	<b>10</b>	<b>29</b>	<b>24</b>	<b>550</b>				<b>200</b>				
<b>GRAND TOTAL : 750</b>																
Free Elective I : (i) Introduction To Earthquake Engineering (ii) Basics of Building Construction (iii) Watershed Management																
<b>SEMESTER : SIXTH</b>																
<b>THEORY</b>																
01	6CE01	Numerical Methods & Computer Programming	4	-	-	4	4	3	80	20	100	40	-	-	-	-
02	6CE02	Structural Design-I	4	-	-	4	4	4	80	20	100	40	-	-	-	-
03	6CE03	Water Resources Engineering-I	3	-	-	3	3	3	80	20	100	40	-	-	-	-
04	6CE04	Transportation Engineering-II	3	1	-	4	4	3	80	20	100	40	-	-	-	-
05	6FECE05	Free Elective-II	3	-	-	3	3	3	80	20	100	40	-	-	-	-
06	6CE06	Estimating & Costing	3	1	-	4	4	4	80	20	100	40	-	-	-	-
<b>PRACTICALS / DRAWING / DESIGN</b>																
07	6CE07	Numerical Methods & Computer Programming - Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
08	6CE08	Structural Design-I - Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
09	6CE09	Estimating & Costing-Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
10	6CE10	Minor Project - Lab	-	-	2	2	1	-	-	-	-	-	25	25	50	25
<b>Total</b>			<b>18</b>	<b>2</b>	<b>10</b>	<b>30</b>	<b>26</b>	<b>600</b>				<b>200</b>				
<b>GRAND TOTAL : 800</b>																
Free Elective II : (i) Disaster Management (ii) Environmental Management																

Note: Students will have to opt the Free Electives offered from other courses of their College / Institution / University Department.

NOTIFICATION

No. 89/2020

Date : 26/10/2020

**Subject : Implementation of new Syllabi of Semester III & IV of B.E. (C.B.C.S.) as per A.I.C.T.E. Model Curriculum...**

It is notified for general information of all concerned that the authorities of the University have accepted to implement new Syllabi of Semester III & IV of B.E./B.Text. E./B.Tech. (Chem.Tech.) (Food, Pulp & Paper, Oil & Paint and Petrochemical Tech.) (C.B.C.S.) as per A.I.C.T.E. Model Curriculum to be implemented from the academic session 2020-21 & onwards as per “Appendix – A” as given below:

Sd/-  
(Dr.T.R.Deshmukh)  
Registrar

“Appendix – A”

**SYLLABI OF B.E. SEM. III & IV (CIVIL ENGINEERING) [C.B.C.S.]**

**THIRD SEMESTER**

**3CE01 MATHEMATICS III**

**Objectives:-**

- Find general solutions of linear differential equations with constant coefficients using the roots of the auxiliary equation.
- Calculate the Laplace Transform of basic functions using the definition.
- Compute the partial Differential Equations.
- Understand the computational details behind certain numerical methods.
- Compute the Analytic function.
- Compute and interpret the correlation coefficient.

**Course Outcomes:**

After successfully completing the course, the students will be able to:

1. Demonstrate the knowledge of differential equations and partial differential equations, applied to electrical engineering systems.
2. Apply Laplace transform to solve differential equations.
3. Demonstrate the use of Partial Differential Equations.
4. Compute different Numerical Methods.
5. Apply the knowledge of Complex Analysis.
6. Demonstrate the basic concepts of probability and statistics.

**SECTION-A**

**Unit I : Ordinary Differential Equations :**

Complete solution, Operator D, rules for finding the complementary function, the inverse operator, Rules for finding particular integral. Method of variation of parameters, Cauchy's and Legendre's Linear Differential equations. Simultaneous linear differential equations with constant coefficients Applications to civil engineering. (7)

**UnitII: Laplace transforms:**

Definition and elementary properties, Inverse L.T. by various methods, Convolution theorem, Solution of ordinary differential equation using Laplace transform of periodic functions. Application to problems of beams and fluids. (7)

**UnitIII : Partial Differential Equations :**

P.D.E. of first order and first degree of types i)  $f(p,q) = 0$  ii)  $f(p,q,z)=0$ , iii)  $f(p,q,x,y)=0$  iv)  $f(p,q,x,y,z)=0$  i.e. (a) Lagrange's form  $Pp + Qq = R$  (b) Clairaut's form  $z=px+qy+f(p,q)$  v) Equations reducible to above standard types linear Homogeneous P.D.E. of nth order with constant coefficients. (7)

**SECTION – B**

**Unit IV:** Torsion: Theory of torsion & assumptions, derivation of torsion equation, polar modulus, stresses in solid & hollow circular shaft, power transmitted by shaft, closed coiled helical spring with axial load. Thin cylinders subjected to internal pressures.

**Unit V:** Principal stresses: Biaxial stress system, principal stresses, principal planes, Mohr's circle of stresses, principal strains. Combined direct & bending stresses.

**Unit VI:** Slope & deflection of beams: Slope & deflection in statically determinate beams subjected to point loads, uniformly distributed loads, moments by Macaulay's method. Theory of long columns, Euler, Rankin's formula.

**Books Recommended:**

1. E. P. Popov, "Mechanics of Materials", Prentice Hall of India, New Delhi.
2. S. Timoshenko and O. H. Young, 'Elements of Strength of Materials', East West Press Private Ltd., New Delhi.
3. Ferdinand L. Singer, 'Strength of Materials', Harper and Row, New York.
4. Shames, I. H., 'Introduction to Solid Mechanics', Prentice Hall of India, New Delhi.
5. R. K. Bansal, Strength of materials, Laxmi Publications Pvt Ltd.
6. Junnarkar, S. B., Mechanics of materials.
7. Mubeen, A., Mechanics of solids, Pearson education (Singapore) Pvt. Ltd.
8. Beer and Johnston, Mechanics of materials, Mc-Graw Hill.
9. S. Ramamrutham, Strength of Materials, Dhanpat Rai Publishing Co Pvt Ltd.

**3CE03 – BUILDING CONSTRUCTION & ENGINEERING GEOLOGY**

**Learning Objectives of Subject:**

1. To understand various types and components of civil structure.
2. To learn about the type of infilling material, its features and construction methodology.
3. To understand various levels in building – floor, sill, lintel, roof levels and their need.
4. To understand the need and type of vertical and horizontal circulation.
5. To make aware of knowledge and importance of rock, soil and its impact for site selection.
6. To help one to understand the reason for Earthquake and its impact on soil / rock properties.

**Course outcomes:**

At the end of the subject the students will be able -

1. To understand Load bearing and Frame structure.
2. To recognize various types of construction material and its suitability
3. To recognize the various levels in building and its need.
4. To know types of staircase, doors, windows and other related fixtures.
5. To recognize types of rock and minerals and its construction properties.
6. To know reason for earthquake and seismic waves.

**SECTION - A**

**Unit I:** Introduction: Definition, types of buildings as per national building code, components of buildings and their functions, Types of structure – load bearing & framed structures. Foundation: Definition and necessity, loads of foundation, Bearing Capacity soil, field methods of improving bearing capacity. Types of foundation – shallow foundation and Types of Shallow foundation. Causes of failure of foundations and precautions to be taken.

**Unit II:** Masonry: Classification of bricks, manufacturing of bricks, tests on bricks, properties of burnt bricks, fly ash bricks, ALC Blocks. Brick masonry construction – Technical terms, general principles, commonly used types of bonds such as stretcher, header, English bond and Flemish bond, their suitability. Formwork: Different types, their relative merits, demerits, period for removal of formwork for different members. Earthquake resistant bands in masonry- Types, location and application.

**Unit III:** Floors: Types of Floors – Basement floor, ground floor and upper floors, Floor finishes – Types of flooring material, different types of floor finishes, suitability, method of construction, criteria for selection. Roofs – Flat, pitched roof, steel roof trusses – types and suitability, types of roof covering. Arches, lintels – Types and their suitability, details of R.C.C. lintels.; chajja, precast lintels arches.

**SECTION - B**

**Unit IV:** Doors: Purpose, criteria for location, size of door, door frames.; its types, methods of fixing, Types of door shutters and their suitability, Windows – Purpose, criteria for location, no., sizes; shapes of Windows, types of windows; their suitability. Ventilators – Types and their suitability. Fixtures & fastening for doors and windows. Stairs – Function, technical terms, criteria for location, types of staircases, their suitability, principle of stair layout design.

**Unit V:** Plastering - Necessity, types, processes of different types of plastering, defects in plastered work. Scaffolding – Purpose, types and suitability. Special Aspects of Construction – Damp proofing – causes of dampness, its effects, various methods of damp proofing. Fire proof construction – Fire protection requirements for a multistoried building. Sound proof Construction – Sound absorbents and their characteristic. Expansion & construction joints in building.

**Unit VI:** Introduction - Different branches of Geology and importance of Geology in Civil Engineering. Folds, faults, joints in Geology. Geological studies related to site selection for dams and reservoirs. Petrology - rock cycle, rock weathering and soil formation, study of common rock types. Earthquake Engineering - earthquake waves, causes and effects, magnitude and intensity, earthquake zones of India.

**Books Recommended:**

1. Mackay W.B.: Building Construction, Vol. I, II, III, Longmans.
2. Sushil Kumar: Building Construction, Standard Publishers Distributors.
3. Singh Parbin: General & Engineering Geology.
4. Mukherjee: A Text Book of Geology.
5. Tuylere G.W.: The Principle of Petrology.
6. Wadia D.N. : Geology of India.
7. Sane L.S.: Construction Engg. Manaktalas, Mumbai.
8. National Building Code of India, 2016.
9. Punmia B.C.: Building Construction.
10. A Manual of Earthquake Resistant, Non-Engineered Construction Indian Society of Earthquake Tech.

**3CE04 – TRANSPORTATION ENGINEERING**

**Learning Objectives of Subject:**

1. To learn about basics of Road construction like surveys, alignment principles, types of roads.
2. To study and understand various road studies for safe road design principles and essential geometry.
3. To learn about various road pavements its construction and maintenance procedure.
4. To learn about railway transportation and terms related to it.
5. To learn about construction concepts of Airport runway, Apron layout, various survey and terms related to Airport Transportation.
6. To learn about Tunnels and Bridges components types and related transportation study.

**Course outcomes:**

At the end of the subject the students will be able –

1. To identify type of roads and its utility.
2. To understand the application of various road studies at time of survey and actual construction.
3. To design the various types of road pavements.
4. To understand rules regulations, signals, type of gauges and railway sleepers density.
5. To recognize the Airport features and design concept of components for Aero plains movement.
6. To identify types and components of Tunnels and bridges and its design components.

**SECTION-A**

**Unit-I Highway:** Road Transport characteristics, classification of Roads, Road Patterns, Alignment principles, Survey for highway.

**Unit-II Geometric Design:** Cross sectional elements, Right of way, Camber, Gradient, Typical Highway cross section in embankment and in cutting, PIEV Theory, stopping sight distance, overtaking sight distance, Horizontal alignment, curves, superelevation.

**Unit-III Pavement Design and Traffic Engineering:** Components of Flexible and Rigid pavement, Design factor, Traffic Characteristics, Traffic Studies, Construction and Maintenance – WBM Surface dressing, bituminous roads and construction procedure. Road parking system, traffic control devices and 3 E's of traffic

**SECTION-B**

**Unit-IV: Railway:** Railway transportation, track sections, embankment & cutting. Points and crossing Left & right hand turnouts. Objects, Permanent way, gauges, coning of wheels, components of permanent way, Sleeper density, Rail fixtures & fastening. Rail types and functions.

**Unit-V: Airport:** Agencies controlling national & international aviation, various surveys to be conducted, airport site selection, Aero plane component parts, Aircraft characteristics. Airport obstructions: Zoning laws, wind rose diagram. Basic runway length and corrections, Apron layout, Aircraft parking & parking system.

**Unit-VI: Tunnel and Bridges:** Tunnels- necessity, types, tunnel alignment, Size and shape of tunnels, and Tunnel lining. Tunnel drainage, ventilation & lighting of tunnels. Bridge Engineering-Components, classification and identification, data collection, site selection, economic span, Estimation of flood discharge, water way, scour depth, depth of foundation, Afflux, clearance and free board, different structural form – culverts, types of foundation, abutments, piers and wing wall.

**Books Recommended:**

- 1) Khanna S.K. & Justo C.E. : Highway Engineering
- 2) Rao G.V. : Principles of Transportation & Highway Engg.
- 3) Dr.Kadiyali L.R. : Traffic Engg. & Transport Planning.
- 4) Bindra S.P. : Principles & Practice of Bridge Engg.
- 5) Saxena & Arora : Railway Engineering.
- 6) Agrawal M.M. : Railway Engineering.
- 7) Khanna S.K., Arora M.G., Jain S.S. : Airport Planning & Design,
- 8) Srinivasan: Tunnel Engineering.
- 9) Shrivastava S.K. : Principles, Practice & Design of Highway Engg.
- 10) Duggal A.K. & Puri V.P. : Laboratory Manual in Highway Engg.

**3CE05 – CONCRETE TECHNOLOGY & RCC**

**Learning Objectives of Subject:**

1. To understand basic construction material - Cement, its property and suitability tests.
2. To learn about meaning of concrete, strength of concrete, mixing proportion and suitability test.
3. To understand meaning of RCC and its need.
4. To learn various properties of concrete and use of different admixtures.
5. To learn about special concrete materials and methods.
6. To be able to perform mix design of concrete

**Course outcomes:**

At the end of the subject the students will be able -

1. To know need and composition of binding material, cement.
2. To recognize concrete and RCC and will be able to perform desired test for suitability,
3. To analyze RCC Components like slab and lintels.
4. To decide and utilize the admixtures as per the need of Concrete.
5. To understand importance of mix design.

**SECTION-A**

**Unit I:** Cement: Physical properties of Portland cement, laboratory tests on cement, types of cements. Aggregate: Classification of aggregate, physical properties, bulking and moisture content, specific gravity, bulk density.

**Unit II:** Properties of fresh concrete: Workability of concrete, methods of measuring workability, nominal mix, mixing, centering & formwork, placing, compaction and curing of concrete. Properties of hardened concrete: Grades of concrete, properties of concrete, compressive, tensile, and shear strength, modulus of elasticity, creep, shrinkage. Durability of concrete, laboratory tests on concrete.

**Unit III:** Basic elastic theory and concept of reinforced concrete, types of reinforcement, Analysis of rectangular sections by working stress method, modes of failure, design of singly reinforced beams, one-way slabs (simply supported), lintels, and chajjas.

**SECTION-B**

**Unit IV:** Pozzolana and Admixtures: Plasticizer, retarders, accelerators, water proofing agents, mineral admixtures, IS code provisions. Construction chemicals: concrete curing compounds, polymer bonding agent, surface retarders, bond aid for plastering, protective and decorative coating.

**Unit V:** Special concrete: Ready Mix Concrete Light weight concrete, fiber reinforced concrete, Roller compacted concrete, self-compacted concrete, high strength concrete, high performance concrete, high volume fly ash concrete. Special concreting techniques: Guniting, grouting and shotcrete concrete, introduction & application of Ferrocement.

**Unit VI:** Introduction of mix design, factors governing mix design, IS Code method of mix design (IS: 10262 – 2019) and Ambuja method.

1. Determination of Los Angeles value
2. Determination of Abrasion value of Aggregates by the use of devil machine
3. Determination of Aggregate Impact value
4. Determination of Aggregate Crushing value
5. Determination of Flakiness and Elongation Index of Aggregate.
6. Determination of Viscosity of Bituminous material
7. Determination of softening point of bituminous material.
8. Determination of ductility of bitumen.
9. Determination of marshal stability value

### 3CE09 CONCRETE TECHNOLOGY & RCC – LAB

**List of Practicals in Concrete Technology & RCC Lab (Minimum eight practical from the list should be performed) :**

1. Mix Design (Compulsory) by IS method.
2. Compulsory site visit and submission of site visit report.
3. Fineness of cement
4. Soundness of cement
5. Consistency and setting time of the cement
6. Compressive strength of cement
7. Sieve analysis of aggregate.
8. Bulking of sand (fine aggregate).
9. Silting of sand.
10. Workability by slump cone test compaction factor test
11. Admixture: Density, Compatibility Test
12. Workability by flow table method.
13. Compressive & Tensile strength of concrete.

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## FOURTH SEMESTER

### 4CE01 BUILDING PLANNING DESIGNING & CAD

#### Learning Objectives of Subject:

1. To understand need of engineering drawings and methods to draw it.
2. To learn about various planning principles and able to apply on residential buildings.
3. To understand seasonal and climatic condition and corresponding provisions in structure.
4. To know regional rules regulation related to building construction.
5. To learn various types of plan – Block , Site , Line , Detail , Section etc.
6. To learn about smart buildings.

#### Course outcomes:

At the end of the subject the students will be able -

1. To make engineering drawings by First angle and Third angle method.
2. To apply building planning principles practically while developing projects.
3. To study the climatic conditions and decide the corresponding provision in structure.
4. To know about Bylaws, Town development authority rules and terms.
5. To draw various plans manually and computationally.

### SECTION-A

**Unit I:** Importance of building drawing for Civil Engineering in construction & industry, estimation, Selection of scales for various drawings. Types of line and their application. Methods of dimensioning in architectural drawing. Abbreviations and graphical symbols used in Civil Engineering Drawing as per IS: 962. Compare first angle and third angle method of projection. Layout of sheet for civil engineering drawing. Requirements of drawing and documents as per plan sanctioning authorities. Define FSI and TDR.

**Unit II:** Planning of residential building. Introduction, general principles of planning viz. aspect, prospect, roominess, privacy, grouping, circulation, ventilation, furniture requirement.

Climate of Indian and its influence on Building planning: Solar radiation, air temperature, wind, humidity, precipitation, earth & its motion, directions to their characteristics. Orientation of buildings: factors affecting orientation, sun, wind, rain. Requirement of the owner. Alternatives of building types viz. individual bungalows, semidetached houses, row houses, apartments. Provision of mezzanine floor, balconies and porches in the building. Common utilities such as parking, security, water supply, sanitation, etc. for apartments. Criteria for earthquake resistant planning of building.

Unit V: Distribution systems - canal systems, alignment of canals, canal losses, estimation of design discharge. Design of channels, Kennedy's and Lacey's theory of regime channels. Canal outlets: non-modular, semi-modular and modular outlets. Lining of canals, types of lining. Water logging problems, causes, effects and remedies.

Unit VI: Dams and spillways – Earthen dams: Classification, design considerations, selection of suitable site. Estimation and control of seepage, slope protection. Gravity dams: forces on gravity dams, causes of failure, stress analysis, elementary and practical profile. Economic height of dam, Spillways: components of spillways, types of gates for spillway.

**Books Recommended:**

1. K Subramanya, Engineering Hydrology, Mc-Graw Hill.
2. K N Muthreja, Applied Hydrology, Tata Mc-Graw Hill.
3. G L Asawa, Irrigation Engineering, Wiley Eastern

**4CE03 SURVEYING**

**Learning Objectives of Subject:**

1. To learn about the term surveying, various instruments and possible error.
2. To learn Linear Measurement methods and way of conduction.
3. To learn about the measurement at elevation and of Directions , contour development process.
4. To understand and learn performing Plane table surveying.

**Course Outcomes:**

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

1. Define principles of Surveying, Remote Sensing and Geomatics.
2. Describe different instruments, tools, applications and techniques to determine the positions on the surface of the earth, change detection.
3. To perform Linear measurement methods of surveying.
4. Differentiate the techniques for setting out alignments, curves, other layouts, modern survey systems etc.
5. To perform survey at elevation and conduct Plane Table survey.

**SECTION-A**

**Unit I: INTRODUCTION:** Geo-informatics- definition, disciplines covered, importance. Field Surveying- definition & objectives; concept of Geoids and reference spheroids, coordinate systems, plane and geodetic surveys. Methods of location of a point- classification of surveys; principles of surveying Errors in measurements- sources, types of errors and their treatment. Random error distribution, accuracy, precision and uncertainty. Surveying instruments- temporary and permanent adjustment concept, principle of reversal. Maps- types, importance, scales/CI, conventional symbols, and generalization; topographic maps projection systems, sheet numbering systems, map layout.

**Unit II: LINEAR MEASUREMENTS:** Direct and indirect methods; Chain and tape measurements- corrections to tape measurements; Optical methods- tachometers, sub tense bar; Electronic methods- EDMs, total stations.

**Unit III: MEASUREMENT OF ELEVATIONS :** Various terms; Methods of height determination; Spirit leveling- different types of levels and staves; booking and reduction of data, classification and permissible closing error; profile leveling and cross sectioning; curvature & refraction and collimation errors; reciprocal leveling. Contours- characteristics, uses and methods of contouring.

**SECTION – B**

**Unit IV: MEASUREMENT OF DIRECTIONS:** Bearings and angles; Compass surveying- magnetic bearings, declination, local attraction errors and adjustments.

**Unit V: TRAVERSING:** Purpose and classification of each; Compass and theodolite traverses, theodolites- different types, uses, methods of observation and booking of data, balancing of traverses, computation of coordinates, omitted measurements Gale's traverse table.

**Unit VI: PLANE TABLING:** Merits and demerits, accessories; orientation and resection; methods of plane tabling; three point problem and solutions; errors in plane tabling, least square principle, Engineering project surveys- requirements and specifications, various stages of survey.

**Books Recommended:**

1. D. Clarke: Plane and Geodatic Surveying, Volume I & II
2. T.P. Kanetkar & Kulkarni: Surveying & Levelling, Part I & II.
3. B.C. Punmia : Surveying I & II.
4. N.N. Basak : Surveying & Levelling.

**4CE05 - STRUCTURAL ANALYSIS- I**

**Learning Objectives of Subject:**

1. To understand the action and corresponding displacement in various type of structural elements.
2. To learn about statically determinate and indeterminate structures.
3. To analyze continuous, cantilever and propped cantilever beams.
4. To learn different analysis methods for analysis of beam, frames and trusses.
5. To learn analysis of 2 Hinge and 3 Hinge arches.

**Course outcomes:**

At the end of the subject the students will be able -

1. To decide what is required to be analyzed depending upon type of structural element.
2. To know about degree of freedom, Condition of equilibrium and determinacy of element.
3. To understand reason for failure and permissible limits for safety.
4. To apply the knowledge of beam analysis for practical analysis and design purpose.
5. To make application of various analysis methods for actual structural member analysis and design.
6. To know merits for utilization of suspension, 2 hinged and 3 hinged arches.

**SECTION – A**

**Unit-I :** 1. Classification of Structures, Concept of statically indeterminate Structures, Analysis of fixed beam and propped cantilever, Rotation and sinking of support.

2. Analysis of Continuous beam by theorem of three moments, sinking of support.

**Unit-II :** 1. Castigliano's theorem I, Unit load method, slope and deflection in determinate beams and portals.

2. Deflection in determinate trusses.

**Unit-III :** Influence line diagrams for reactions, bending moment and shear force for determinate beams. Rolling loads on simply supported beams concentrated and uniformly distributed loads, maximum shear force and bending moment, focal length.

**SECTION - B**

**Unit IV :** 1. Analysis of Cables Suspension Bridge under Concentrated Load and UDL for Cables over pulleys and Cable provided with saddles.

2. Two & Three hinged arches subjected to static loads, Bending moment, radial shear and axial thrust.

**Unit V: Slope deflection method:** 1. Analysis of continuous beams with and without sinking of support.

2. Analysis of portal frames without side sway.

**Unit VI : Moment Distribution method:** 1. Analysis of continuous beams with and without sinking of support.

2. Analysis of portal frames without side sway.

**Books Recommended:**

1. Junnarkar, S. B., Mechanics of Structure, Volume I and II.
2. Jain and Arya, Theory and Analysis of Structures .
3. Reddy. C. S., Basic Structural Analysis, Tata – McGraw hill
4. Wang, C. K., Elementary Analysis of Structures
5. Norris and Wilbur, Elementary Structural analysis.

**4CE06 BUILDING PLANNING DESIGNING & CAD – LAB**

**A. SKETCH BOOK :**

1. Draw various types of lines, Graphical symbols for materials, doors, windows, sanitary and water supply installations, electrical installations, Abbreviations as per IS 962:1989, Location for bed, sofa, dining table with chairs, wardrobe, kitchen furniture, etc. Free hand sketches of Verandah, lobby, passage, corridor and balconies. Building layout plan with setback lines, sanitary and water supply lines. Loft and Mezzanine floor.

2. Collect one readymade drawing for residential building (1 BHKD or 2BHKD) Read various details shown on drawing. write summary of observations on the drawing itself such as orientation of rooms, placement of doors and windows, wall thicknesses, flooring in rooms and sanitary block, skirting, dado, kitchen platform-size, height etc; room height, chajja projections, staircase-rise, tread, landing etc. Attach these drawings with the sketch book.

3. Draw line plans for five Residential Buildings with minimum three rooms and staircase in each with WC and Bath.

4. Draw line plans for five Public Building- School Building, Primary Health Centre, Hospital Building, Bank, Post Office, Hostel, Canteen and Shopping Complex. Bar & Restaurant and Hotels, Saloon, Bus Station.