



K J's Educational Institute

K J College of Engineering and Management Research

Sec No.25 & 27, Pisoli At Tal-Haveli, Dist-Pune

Affiliating University Feedback and Action taken report Index

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KJ's Educational Institute

K J COLLEGE OF ENGINEERING & MANAGEMENT RESEARCH

[Approved by AICTE, New Delhi, DTE Maharashtra & Affiliated to Savitribai Phule Pune University, Pune (ID No: PU/PN/Engg./378/2009)]

DTE College Code – EN 6320 Website: www.kjei.edu.in/kjcoemr E-mail:principalkjcoemr@gmail.com

Dr. Suhas S. Khot
B.E., M.E., Ph.D. (E&TC. Engg.)
Principal

Shri. Kalyan J. Jadhav
M. Com (Hons.)
Founder President

REF. No. KJEI/KJCOEMR/AO/2021-22

Date: 09/05/2022

To,
Dy. Registrar
Academic Section.
Savitribai Phule Pune University,
Pune-411007

Subject: Regarding suggestion in the curriculum update of Civil Engineering.

Respected Sir,

With reference to the above mentioned subject, we are suggesting to update the curriculum for the subject mentioned below as per the feedback taken from our stakeholders. We have analyzed the stakeholder's feedback for the year 2021-22, As per their suggestion, to compete with the technological upgradation of the current world we need to update the syllabi. So we request you to implement the suggestions given in detail below to our curriculum in consultation with respective BOS and the Dean. The detailed report is attached herewith for your information and necessary action.

Thanking you,

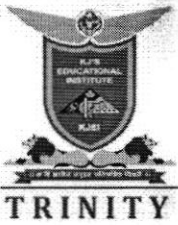


Principal
KJ COLLEGE OF ENGINEERING & MANAGEMENT RESEARCH
Sr. No. 25 & 27, Bopdev Ghat,
Kondhwa-Saswad Road, Pune-411048

Principal's Office

Campus : Sr. No. 25 & 27, Pisoli, Near Bopdeo Ghat,
Tal: Haveli, Dist: Pune - 411 048
Phone: 020-26934417, 69709009, 65789009

Head Office : 408/10, 2nd Floor, "Purandar Complex",
Mukundnagar, Industrial Estate, Pune - 411 030
Phone: 91-20-24269100, 24267100, Fax: 91-20-24264379



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**K J COLLEGE OF ENGINEERING AND MANAGEMENT
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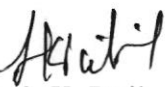
Sr. No. 25 & 27, Near. Khadi Machine Chowk, Kondhwa Annexe, Pune-48, Maharashtra

Suggestion Details with justification

Based on the stakeholder's feedback following suggestions were proposed. The details of the same with the branch, course, subject topic is mentioned below. Please submit the same to concern board of studies of university for updating in the curriculum.

Sr. No.	Course Name	Topic/subject to be added	Justification for the topic/subject to be added
1	BE-Civil Engineering	Project Stage II (401 006)	As project stage-II includes field work and experimentation, the Hours/week allotted should be increased.

Sr. No. | Course Name


Dr. S. K. Patil
HOD E&TC



Dr. S. S. Khot
Principal



SAVITRIBAI PHULE PUNE UNIVERSITY



SAVITRIBAI PHULE PUNE UNIVERSITY

Board of Studies in Civil Engineering

Structure and Syllabus for B.E. Civil 2015 Course (w. e. f. June, 2018)

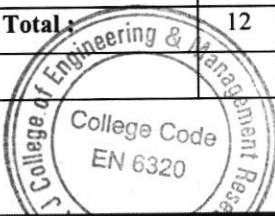


Dr. Suhas S. Khot
Principal
K. J. College of Engineering
& Management Research
S.No.25,27, Kundhwa-Saswad Road,
Near Bopdev Ghat, Pune-411 048

SAVITRIBAI PHULE PUNE UNIVERSITY
Board of Studies in Civil Engineering
Structure for B.E. Civil 2015 Course (w. e. f. June 2018)

Semester-I											
Subject code	Subject	Teaching Scheme			In-Semester Assessment	TW	Pract /Or	End-Semester Exam	Total	Credit	
		Hrs/Week								Th	Lab
		Lect	Tu	Pr							
401 001	Environmental Engineering II	3	--	2	30	--	50	70	150	3	1
401002	Transportation Engineering	3	--	2	30	50	--	70	150	3	1
401 003	Structural Design and Drawing III	4	--	2	30	--	50	70	150	4	1
401 004	Elective I	3	--	2	30	50	--	70	150	3	1
401 005	Elective II	3	--	--	30	--	--	70	100	3	--
401 006	Project (Phase-I)	--	2	--	--	50	-	--	50	--	2
Total :		16	2	8	150	150	100	350	750	16	6
										22 Credits	

Semester-II											
Subject code	Subject	Teaching Scheme			In-Semester Assessment	TW	Or	End-Semester Exam	Total	Credit	
		Hrs/Week								Th	Pr
		Lect	Tu	Pr							
401 007	Dams and Hydraulic Structures	3	--	2	30	--	50	70	150	3	1
401008	Quantity Surveying, Contracts and tenders	3	--	2	30	--	50	70	150	3	1
401 009	Elective III	3	--	2	30	50	--	70	150	3	1
401 010	Elective IV	3	--	2	30	50	--	70	150	3	1
401 006	Project	--	6	--	--	50	100	--	150	--	6
Total :		12	6	8	120	150	200	280	750	12	10
										22 Credits	



Dr. Suhas S. Khot
Principal
K. J. College of Engineering
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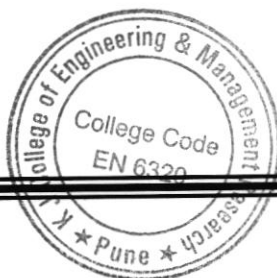


Syllabus for BE Civil Engineering (2019 Pattern)

Implemented from Academic year 2022-23

Board of Studies in Civil Engineering

Faculty of Science and Technology



Dr. Suhas S. Khot
Principal

K. J. College of Engineering
& Management Research
S.No.25,27, Keshavnagar-Baswad Road,
Near Bopdev Ghat Pune-411 048

Savitribai Phule Pune University, Pune
BE (Civil Engineering) 2019 Pattern
(With effect from Academic Year 2022-23)

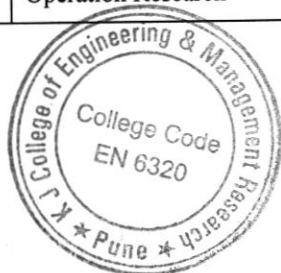
SEMESTER: VII

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit					
		Theory	Practical	Tutorial	IN-Sem	End-Sem	TW	PR	OR	Total	TH	TW	PR	OR	TUT	Total
401001	Foundation Engineering	03	--	--	30	70	--	--	--	100	03	--	--	--	--	03
401002	Transportation Engineering	03	--	--	30	70	--	--	--	100	03	--	--	--	--	03
401003	Elective III	03	--	--	30	70	--	--	--	100	03	--	--	--	--	03
401004	Elective IV	03	--	--	30	70	--	--	--	100	03	--	--	--	--	03
401005	Project Stage I	--	04	--	--	--	50	--	50	100	--	01	--	02	--	03
401006	Transportation Engineering Lab	--	02	--	--	--	--	--	50	50	--	--	--	01	--	01
401007	Elective III Lab	--	02	--	--	--	--	--	50	50	--	--	--	01	--	01
401008	Elective IV Lab	--	02	--	--	--	50	--	--	50	--	01	--	--	--	01
401009	Computer Programming in Civil Engineering	01	02	--	--	--	50	--	--	50	--	02	--	--	--	02
401010	Audit Course I Stress Management by Yoga / Communication Etiquette in Workplaces	--	--	01	--	GR	--	--	--	GR	--	--	--	--	--	--
Total		13	12	01	120	280	150	--	150	700	12	04	--	04	--	20

Abbreviations: TH : Theory, TW: Term Work, PR : Practical, OR: Oral, TUT : Tutorial, GR: Grade

Elective III and IV

S N	Course Code	Elective III: Course Name	Course Code	Elective IV: Course Name
01	401003 a	Coastal Engineering	401004 a	Air Pollution and Control
02	401003 b	Advanced Design of Concrete Structures	401004 b	Advanced Design of Steel Structures
03	401003 c	Integrated Water Resources Planning & Management	401004 c	Statistical Analysis and Computational Method
04	401003 d	Finite Element Method	401004 d	Airport and Bridge Engineering
05	401003 e	Data Analytics	401004 e	Design of Prestressed Concrete Structures
06	401003 f	Operation Research	401004 f	Formwork and Plumbing Engineering



2

Sgt
Dr. Suhas S. Khot
Principal
 K. J. College of Engineering
 & Management Research
 S.No.25.27, Kondhwa-Saswad Road,
 Near Bogdev Ghat, Pune-411 042


SEMESTER-VIII																
Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit					
		Theory	Practical	Tutorial	IN-Sem	End-Sem	TW	PR	OR	Total	TH	TW	PR	OR	TUT	Total
401011	Dams and Hydraulics Structures	03	--	--	30	70	--	--	--	100	03	--	--	--	03	
401012	Quantity Surveying, Contracts and Tenders	03	--	--	30	70	--	--	--	100	03	--	--	--	03	
401013	Elective V	03	--	--	30	70	--	--	--	100	03	--	--	--	03	
401014	Elective VI	03	--	--	30	70	--	--	--	100	03	--	--	--	03	
401015	Project Stage II	--	10	--	--	--	100	--	50	150	--	03	--	02	05	
401016	Dams and Hydraulics Structures Lab	--	02	--	--	--	--	--	50	50	--	--	--	01	01	
401017	Quantity Surveying, Contracts and Tenders Lab	--	02	--	--	--	--	--	50	50	--	--	--	01	01	
401018	Elective V Lab	--	02	--	--	--	50	--	--	50	--	01	--	--	01	
401019	Audit Course II Social Responsibility / Human Rights	--	--	01	--	GR	--	--	--	GR	--	--	--	--	--	
Total		12	16	01	120	280	150	--	150	700	12	04	--	04	--	20

Abbreviations: TH : Theory, TW: Term Work, PR : Practical, OR: Oral and TUT : Tutorial, GR: Grade

Elective V and VI

S N	Course Code	Elective V: Course Name	Course Code	Elective VI: Course Name
01	401013 a	Earthquake Engineering	401014 a	TQM and MIS
02	401013 b	Structural Design of Bridges	401014 b	Advanced Transportation Engineering
03	401013 c	Irrigation and Drainage	401014 c	Geo Synthetic Engineering
04	401013 d	Design of Precast and Composite Structures	401014 d	Structural Design of Foundations
05	401013 e	Hydropower Engineering	401014 e	Green Structures and Smart Cities
06	401013 f	Structural Audit and Retrofitting of Structures	401014 f	Rural Water Supply and Sanitation




Dr. Suhas S. Khot
 Principal
 K. J. College of Engineering
 & Management Research
 S.No.25,27, Kondhwa-Saswad Road
 Near Sapdev Ghat, Pune-411 004



KJ's Educational Institute
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DTE College Code – EN 6320 Website: www.kjei.edu.in/kjcoemr E-mail:principalkjcoemr@gmail.com

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KJEI/KJCOEMR/AO/2021-22

Date: 09/08/2022

To,
Dy. Registrar
Academic Section.
Savitribai Phule Pune University,
Pune-411007

Subject: Regarding suggestion in the curriculum update of Computer Engineering.

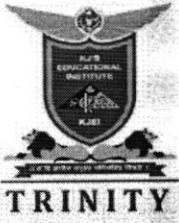
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KJ COLLEGE OF ENGINEERING & MANAGEMENT RESEARCH
Sr. No. 25 & 27, Bopdev Ghat,
Kondhwa-Saswad Road, Pune-411 048



KJ'S EDUCATIONAL INSTITUTES

**K J COLLEGE OF ENGINEERING AND MANAGEMENT
RESEARCH, PUNE**

Sr. No. 25 & 27, Near. Khadi Machine Chowk, Kondhwa Annexe, Pune-48, Maharashtra

Suggestion Details with justification

Based on the stakeholder's feedback following suggestions were proposed. The details of the same with the branch, course, subject topic is mentioned below. Please submit the same to concern board of studies of university for updating in the curriculum.

Sr. No.	Course Name	Topic/subject to be added	Justification for the topic/subject to be added
1	BE-Computer Engineering	Application Oriented Subjects	Please include some application oriented subjects like Deep learning, Image processing, Biomedical applications etc. in the final year curriculum.

Sr. No. Course Name

F. B. Maral

Prof. V. B. Maral
HOD E&TC



topic/subject to be added

S. S. Khot

Dr. S. S. Khot
Principal

**Faculty of Engineering
Savitribai Phule Pune University, Pune
Maharashtra, India**

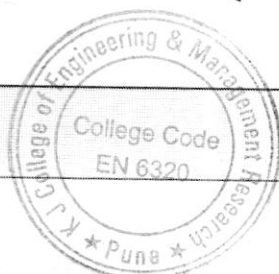


Syllabus

for

**Fourth Year of Computer Engineering
(2015 Course)**

(with effect from 2018-19)



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Dr. Suhas S. Khot
Principal

K. J. College of Engineering
& Management Research
S.No.25,27, Kancha-Siswad Road,
Near Bopdev Ghat, Pune-411 048

Savitribai Phule Pune University
Fourth Year of Computer Engineering (2015 Course)
 (with effect from 2018-19)

Semester I

Course Code	Course	Teaching Scheme Hours / Week		Examination Scheme and Marks						Credit		
		Theory	Practical	In-Sem	End-Sem	TW	PR	OR/ *PRE	Total	TH/ TUT	PR	
410241	High Performance Computing	04	--	30	70	--	--	--	100	04	--	
410242	Artificial Intelligence and Robotics	03	--	30	70	--	--	--	100	03	--	
410243	Data Analytics	03	--	30	70	--	--	--	100	03	--	
410244	Elective I	03	--	30	70	--	--	--	100	03	--	
410245	Elective II	03	--	30	70	--	--	--	100	03	--	
410246	Laboratory Practice I	--	04	--	--	50	50	--	100	--	02	
410247	Laboratory Practice II	--	04	--	--	50	--	*50	100	--	02	
410248	Project Work Stage I	--	02	--	--	--	--	*50	50	--	02	
Total Credit										16	06	
Total		16	10	150	350	100	50	100	750	22		
410249	Audit Course 5										Grade	
Elective I						Elective II						
410244 (A) Digital Signal Processing						410245 (A) Distributed Systems						
410244 (B) Software Architecture and Design						410245 (B) Software Testing and Quality Assurance						
410244 (C) Pervasive and Ubiquitous Computing						410245 (C) Operations Research						
410244 (D) Data Mining and Warehousing						410245 (D) Mobile Communication						

410249-Audit Course 5 (AC5) Options:

AC5-I Entrepreneurship DevelopmentAC5-IV: Industrial Safety and Environment ConsciousnessAC5-II: Botnet of ThingsAC5-V: Emotional IntelligenceAC5-III: 3D PrintingAC5-VI: MOOC- Learn New Skills

Abbreviations:

TW: Term Work

TH: Theory

OR: Oral

PR: Practical

Sem: Semester

*PRE: Project/ Mini-Project Presentation

Syllabus for Fourth Year of Computer Engineering



Suh
Dr. Suhas S. Khot
 Principal
 K. J. College of Engineering
 & Management Research
 S.No.25,27, Keshavnagar Saswad Road,
 Near Bopdev Char, Pune-411 048

#4/87

Savitribai Phule Pune University
Fourth Year of Computer Engineering (2015 Course)
(with effect from 2018-19)

Semester II

Course Code	Course	Teaching Scheme Hours / Week		Examination Scheme and Marks						Credit		
		Theory	Practical	In-Sem	End-Sem	TW	PR	OR/ *PRE	Total	TH/ TUT	PR	
410250	Machine Learning	03	--	30	70	--	--	--	100	03	--	
410251	Information and Cyber Security	03	--	30	70	--	--	--	100	03	--	
410252	Elective III	03	--	30	70	--	--	--	100	03	--	
410253	Elective IV	03	--	30	70	--	--	--	100	03	--	
410254	Laboratory Practice III	--	04	--	--	50	50	--	100	--	02	
410255	Laboratory Practice IV	--	04	--	--	50	--	*50	100	--	02	
410256	Project Work Stage II	--	06	--	--	100	--	*50	150	02	04	
Total Credit									12	10		
Total		12	14	120	280	200	50	100	750	22		
410257	Audit Course 6										Grade	
Elective III						Elective IV						
410252 (A) <u>Advanced Digital Signal Processing</u>						410253 (A) <u>Software Defined Networks</u>						
410252 (B) <u>Compilers</u>						410253 (B) <u>Human Computer Interface</u>						
410252 (C) <u>Embedded and Real Time Operating Systems</u>						410253 (C) <u>Cloud Computing</u>						
410252 (D) <u>Soft Computing and Optimization Algorithms</u>						410253 (D) <u>Open Elective</u>						

410259-Audit Course 6 (AC6) Options:

AC6-I: Business IntelligenceAC6-IV: Usability EngineeringAC6-II: GamificationAC6-V: Conversational InterfacesAC6-III: Quantum ComputingAC6-VI: MOOC- Learn New Skills

Abbreviations:

TW: Term Work

TH: Theory

OR: Oral

PR: Practical

Sem: Semester

*PRE: Project/ Mini-Project Presentation

410252 (D) S



Syllabus for Fourth Year of Computer Engineering

S.S. Khot
Dr. Sufas S. Khot
 Principal

K. J. College of Engineering
 & Management Research
 S.No. 227, T. P. Road, Road,
 Near Wadgaon, Pune - 411 048

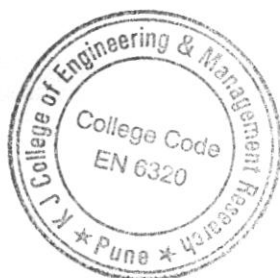
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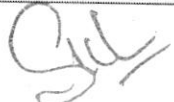
Faculty of Engineering
Savitribai Phule Pune University, Pune
Maharashtra, India



Curriculum
for
Fourth Year of Computer Engineering
(2019 Course)
(With effect from 2022-23)

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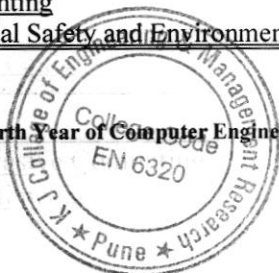

Dr. Suhas S. Khot
Principal
K. J. College of Engineering
& Management Research
S.No 2507, G. K. Road,
Near Gopdev, Pune - 411 048



BE Computer Engineering 2019 Course tentative Curriculum structure:

Savitribai Phule Pune University Fourth Year of Computer Engineering (2019 Course) (With effect from Academic Year 2022-23)														
Semester VII														
Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral/Pre	Total	Lecture	Practical	Tutorial	Total
410241	<u>Design and Analysis of Algorithms</u>	03	-	-	30	70	-	-	-	100	3	-	-	3
410242	<u>Machine Learning</u>	03	-	-	30	70	-	-	-	100	3	-	-	3
410243	<u>Blockchain Technology</u>	03	-	-	30	70	-	-	-	100	3	-	-	3
410244	<u>Elective III</u>	03	-	-	30	70	-	-	-	100	3	-	-	3
410245	<u>Elective IV</u>	03	-	-	30	70	-	-	-	100	3	-	-	3
410246	<u>Laboratory Practice III</u>	-	04	-	-	-	50	50	-	100	-	2	-	2
410247	<u>Laboratory Practice IV</u>	-	02	-	-	-	50	-	-	50	-	1	-	1
410248	<u>Project Stage I</u>	-	02	-	-	-	50	-	-	50	-	2	-	2
Total Credit											15	05	-	20
Total		15	08	-	150	350	150	50	-	700	15	05	-	20
410249	<u>Audit Course 7</u>										Grade			
Elective III						Elective IV								
410244(A) Pervasive Computing 410244(B) Multimedia Techniques 410244(C) Cyber Security and Digital Forensics 410244(D) Object Oriented Modeling and Design 410244(E) Digital Signal Processing						410245(A) Information Retrieval 410245(B) GPU Programming and Architecture 410245(C) Mobile Computing 410245(D) Software Testing and Quality Assurance 410245(E) Compilers								
Laboratory Practice III: Laboratory assignments Courses- 410241, 410242, 410243						Laboratory Practice IV: Laboratory assignments Courses- 410244, 410245								
Audit Course 7(AC7) Options: AC7- I MOOC- Learn New Skills AC7- II Entrepreneurship Development AC7- III Botnet of Things AC7- IV 3D Printing AC7- V Industrial Safety and Environment Consciousness														

Syllabus for Fourth Year of Computer Engineering



Dr. Suhas S. Khot
Principal

K. J. College of Engineering
& Management Research
S.No. 25, 27, 28, 29, Saswad Road,
Near Bopdev, Pune-411 043

#6/128



Savitribai Phule Pune University														
Final Year of Computer Engineering (2019 Course)														
(With effect from Academic Year 2022-23)														
Semester VIII														
Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral/Pre	Total	Lecture	Practical	Tutorial	Total
410250	High Performance Computing	03	-	-	30	70	-	-	-	100	03			03
410251	Deep Learning	03	-	-	30	70	-	-	-	100	03			03
410252	Elective V	03	-	-	30	70	-	-	-	100	03			03
410253	Elective VI	03	-	-	30	70	-	-	-	100	03			03
410254	Laboratory Practice V	-	02	-	-	-	50	50	-	100		01		01
410255	Laboratory Practice VI	-	02	-	-	-	50	-	-	50		01		01
410256	Project Stage II	-	06	-	-	-	100	-	50	150		06		06
Total Credit											12	08	-	20
Total		12	10	-	120	280	200	50	50	700	12	08	-	20
410257	Audit Course 8													Grade
Elective V						Elective VI								
410252(A) Natural Language Processing						410253(A) Pattern Recognition								
410252(B) Image Processing						410253(B) Soft Computing								
410252(C) Software Defined Networks						410253(C) Business Intelligence								
410252(D) Advanced Digital Signal Processing						410253(D) Quantum Computing								
410252(E) Open Elective I						410253(E) Open Elective II								
Lab Practice V:						Lab Practice VI:								
Laboratory assignments Courses- 410250, 410251						Laboratory assignments Courses- 410252, 410253								
Audit Course 8(AC8) Options: <u>AC8- I Usability Engineering</u> <u>AC8- II Conversational Interfaces</u> <u>AC8- III Social Media and Analytics</u> <u>AC8- IV MOOC- Learn New Skills</u> <u>AC8- V Emotional Intelligence</u>														

Elective V



Syllabus for Fourth Year of Computer Engineering

Audit Course 8(AC8) Options:

Elective VI

Dr. Suhas S. Khot.
Principal

K. J. College of Engineering
& Management Research
S No. 25, 27, Kothrud - Kaswad Road,
Near Bopdev Lane, Pune-411 043

#7/128



KJ's Educational Institute
K J COLLEGE OF ENGINEERING & MANAGEMENT RESEARCH

[Approved by AICTE, New Delhi, DTE Maharashtra & Affiliated to Savitribai Phule Pune University, Pune (ID No: PU/PN/Engg./378/2009)]
DTE College Code – EN 6320 Website: www.kjei.edu.in/kjcoemr E-mail:principalkjcoemr@gmail.com

Dr. Suhas S. Khot
B.E., M.E., Ph.D. (E&TC. Engg.)
Principal

Shri. Kalyan J. Jadhav
M. Com (Hons.)
Founder President

REF NO: KJEE/KJCOEMR/1A0/2021-22

Date: 03/10/2022

To,
Dy. Registrar
Academic Section.
Savitribai Phule Pune University,
Pune-411007

Subject: Regarding suggestion in the curriculum update of E&TC Engineering.

Respected Sir,

With reference to the above mentioned subject, we are suggesting to update the curriculum for the subject mentioned below as per the feedback taken from our stakeholders. We have analyzed the stakeholder's feedback for the year 2021-22, As per their suggestion, to compete with the technological upgradation of the current world we need to update the syllabi. So we request you to implement the suggestions given in detail below to our curriculum in consultation with respective BOS and the Dean. The detailed report is attached herewith for your information and necessary action.

Thanking you,



Principal
KJ COLLEGE OF ENGINEERING & MANAGEMENT RESEARCH
Sr. No. 25 & 27, Bopdev Ghat,
Kondhwa-Saswad Road, Pune-411 048



KJ'S EDUCATIONAL INSTITUTES


**K J COLLEGE OF ENGINEERING AND MANAGEMENT
RESEARCH, PUNE**

Sr. No. 25 & 27, Near. Khadi Machine Chowk, Kondhwa Annexe, Pune-48, Maharashtra


Suggestion Details with justification

Based on the stakeholder's feedback following suggestions were proposed. The details of the same with the branch, course, subject topic is mentioned below. Please submit the same to concern board of studies of university for updating in the curriculum.

Sr. No.	Course Name	Topic/subject to be added	Justification for the topic/subject to be added
1	BE-Electronics and Telecommunication Engineering	Embedded System Design	Along with the theory of Embedded systems(subject-ESRTOS_404184) students should know the procedures/design of embedded systems using widely accepted hardware platforms available in market.


Dr. P. U. Chavan
HOD E&TC




Dr. S. S. Khot
Principal

Savitribai Phule Pune University
Faculty of Science & Technology



B.E. (Electronics & Telecommunication)
(2015 Pattern) Syllabus
(With effect from Academic Year 2018-19)



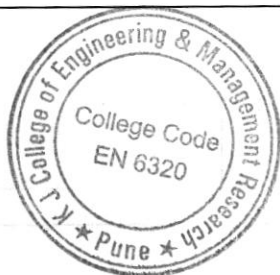
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Dr. Suhas S. Khot
Principal
K. J. College of Engineering
& Management Research
S.No.25,27, Kondhwa-Saswad Road,
Near Sopdev Ghat, Pune-411 048

Savitribai Phule Pune University
Final Year E&TC Engineering (2015 Course)
 (With effect from Academic Year 2018-19)

Semester I												
Course Code	Course	Teaching Scheme Hours / Week			Semester Examination Scheme of Marks						Credits	
		Theor y	Tut	Pract	In-Sem	End-Sem	TW	PR	OR	Total	TH/TW	PR+OR
404181	VLSI Design & Technology	3	--	--	30	70	--	--	--	100	3	--
404182	Computer Networks & Security	4	--	--	30	70	--	--	--	100	4	--
404183	Radiation & Microwave Techniques	3	--	--	30	70	--	--	--	100	3	--
404184	Elective I	3	--	--	30	70	--	--	--	100	3	--
404185	Elective II	3	--	--	30	70	--	--	--	100	3	--
404186	Lab Practice -I (CNS+ RMT)	--	--	4	--	--	50	--	50	100	--	TW 01 + OR 01
404187	Lab Practice -II (VLSI + Elective I)	--	--	4	--	--	50	50	--	100	--	TW01 + PR 01
404188	Project Stage I	-	2	--	--	--	-	--	50	50	--	2
	Audit Course 5	--	--	--	--	--	--	--	--	--	----	
Total		16	2	8	150	350	100	50	100	750	16	6
Total Credits											22	

<p><u>Elective I</u></p> <ol style="list-style-type: none"> 1. Digital Image and Video Processing 2. Industrial Drives and Control 3. Embedded Systems & RTOS 4. Internet of Things 	<p><u>Elective II</u></p> <ol style="list-style-type: none"> 1. Wavelets 2. Electronics Product Design 3. Optimization Techniques 4. Artificial Intelligence 5. Electronics in agriculture 	<p><u>Audit Course 5</u></p> <ol style="list-style-type: none"> 1. Green Energy 2. Human Behaviour
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Dr. Suhas S. Khot
 Principal
 K. J. College of Engineering
 & Management Research
 S.No. 25, 27, Kondhwa Bawad Road,
 Near Bopdev Ghat, Pune-411 042

Final Year E&TC Engineering (2015 Course)
(With effect from Academic Year 2018-19)

Semester II												
Course Code	Course	Teaching Scheme			Semester Examination Scheme of						Credit	
		Hours / Week			Marks						TH/TW	PR+OR
		Theory	Tut	Pract	In-Sem	End-Sem	TW	PR	OR	Total		
404189	Mobile Communication	3	--	--	30	70	--	--	--	100	3	--
404190	Broadband Communication Systems	4	--	--	30	70	--	--	--	100	4	--
404191	Elective III	3	--	--	30	70	--	--	--	100	3	--
404192	Elective IV	3	--	--	30	70	--	--	--	100	3	--
404193	Lab Practice –III (MC+BCS)	--	--	4	--	--	50	50	--	100	--	TW 01 + PR 01
404194	Lab Practice –IV (Elective III)	--	--	2	--	--	--	--	50	50	--	1
404195	Project Stage II	--	6	-	--	--	--	150	50	200	--	TW 04 + OR 02
	Audit Course 6	--	--	--	--	--	--	--	--	--		
Total		13	6	6	120	280	200	50	100	750	13	9
Total Credits											22	
Elective III				Elective-IV				Audit Course 6				
1. Machine Learning 2. PLC s and Automation 3. Audio and Speech Processing 4. Software Defined Radio 5. Audio Video Engineering				1. Robotics 2. Biomedical Electronics 3. Wireless Sensor Networks 4. Renewable Energy Systems 5. Open Elective*				1. Team Building, Leadership and Fitness 2. Environmental issues and Disaster Management				



Savitribai Phule Pune University
Faculty of Science and Technology



Syllabus for
B.E (Electronics & Telecommunication Engineering)
(Course 2019)
(w.e.f. June 2022)



Dr. Suhas S. Khot
Principal

K. J. College of Engineering
& Management Research
S.No.25,27, Kondhwa-Saswad Road,
Nr. Bopdev, Ghat, Pune-411 048

Savitribai Phule Pune University, Pune
B.E. (Electronics & Telecommunication) 2019 Course
 (With effect from Academic Year 2022-23)

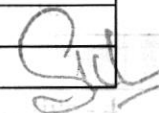
Semester-VII

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks					Credit				
		Theory	Practical	Tutorial	In-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
404181	Radiation & Microwave Theory	03	-	-	30	70	-	-	-	100	03	-	-	03
404182	VLSI Design and Technology	03	-	-	30	70	-	-	-	100	03	-	-	03
404183	Cloud Computing	03	-	-	30	70	-	-	-	100	03	-	-	03
404184	Elective - 3	03	-	-	30	70	-	-	-	100	03	-	-	03
404185	Elective - 4	03	-	-	30	70	-	-	-	100	03	-	-	03
404186	Lab Practice - 1 (RMT & Cloud Computing)	-	04	-	-	-	25	-	50	75	-	02	-	02
404187	Lab Practice - 2 (VLSI Design & Elective -3)	-	04	-	-	-	25	50	-	75	-	02	-	02
404188	Project Stage - I	-	02	-	-	-	50	-	-	50	-	01	-	01
404189	Mandatory Audit Course 7	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		15	10	-	150	350	100	50	50	700	-	-	-	-
Total Credits											15	05	-	20

Elective - 3	Elective - 4
1. Speech Processing	1. Data Mining
2. PLC SCADA & Automation	2. Electronic Product Development
3. JAVA Script	3. Deep Learning
4. Embedded & RTOS	4. Low Power CMOS
5. Modernized IoT	5. Smart Antennas

Mandatory Audit Course - 7
1. Management Information System
2. Patent Search & Analysis
3. Knowledge Management
4. Energy Economics & Policy
5. Educational Leadership
6. Human Resource Development




Dr. Suhas S. Khot
 Principal
 K. J. College of Engineering
 & Management Research
 S.No.25,27, Kondhwa-Saswad Road,
 Near Bopdev Ghat Pune-411 048

Savitribai Phule Pune University, Pune
B.E. (Electronics & Telecommunication) 2019 Course
 (With effect from Academic Year 2022-23)

Semester-VIII

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	In-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
404190	Fiber Optic Communication	03	-	-	30	70	-	-	-	100	03	-	-	03
404191	Elective - 5	03	-	-	30	70	-	-	-	100	03	-	-	03
404192	Elective - 6	03	-	-	30	70	-	-	-	100	03	-	-	03
404193	Innovation & Entrepreneurship	-	-	02	-	-	50	-	-	50	-	-	02	02
404194	Digital Business Management	-	-	02	-	-	50	-	-	50	-	-	02	02
404195	Fiber Optic Lab	-	02	-	-	-	25	-	50	75	-	01	-	01
404196	Lab Practice - 3 (Elective - 5)	-	02	-	-	-	25	50	-	75	-	01	-	01
404197	Project Stage - II	-	10	-	-	-	100	-	50	150	-	05	-	05
Total		09	14	04	90	210	250	50	100	700	-	-	-	-
Total Credits											09	07	04	20

Elective - 5	Elective - 6
1. Biomedical Signal Processing	1. System on Chip
2. Industrial Drives & Automation	2. Nano Electronics
3. Android Development	3. Remote Sensing
4. Embedded System Design	4. Digital Marketing
5. Mobile Computing	5. Open Elective



Sil
 Dr. Suhas S. Khot
 Principal
 K. J. College of Engineering
 & Management Research
 S No. 25, 27, Kondhwa Road,
 Near Bopdev, Pune-411 048



KJ's Educational Institute
K J COLLEGE OF ENGINEERING & MANAGEMENT RESEARCH

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DTE College Code – EN 6320 Website: www.kjei.edu.in/kjcoemr E-mail:principalkjcoemr@gmail.com

Dr. Suhas S. Khot
B.E., M.E., Ph.D. (E&TC. Engg.)
Principal

Shri. Kalyan J. Jadhav
M. Com (Hons.)
Founder President

REF NO. KJEL/KJCOEMR/AOI/2021-22

Date: 09/05/2022

To,
Dy. Registrar
Academic Section.
Savitribai Phule Pune University,
Pune-411007

Subject: Regarding suggestion in the curriculum update of Electrical Engineering.

Respected Sir,

With reference to the above mentioned subject, we are suggesting to update the curriculum for the subject mentioned below as per the feedback taken from our stakeholders. We have analyzed the stakeholder's feedback for the year 2021-22, As per their suggestion, to compete with the technological upgradation of the current world we need to update the syllabi. So we request you to implement the suggestions given in detail below to our curriculum in consultation with respective BOS and the Dean. The detailed report is attached herewith for your information and necessary action.

Thanking you,



Principal

KJ COLLEGE OF ENGINEERING & MANAGEMENT RESEARCH
Sr. No. 25 & 27, Bopdev Ghat,
Kondhwa-Saswad Road, Pune-411 048



KJ'S EDUCATIONAL INSTITUTES

**K J COLLEGE OF ENGINEERING AND MANAGEMENT
RESEARCH, PUNE**

Sr. No. 25 & 27, Near. Khadi Machine Chowk, Kondhwa Annexe, Pune-48, Maharashtra

Suggestion Details with justification

Based on the stakeholder's feedback following suggestions were proposed. The details of the same with the branch, course, subject topic is mentioned below. Please submit the same to concern board of studies of university for updating in the curriculum.

Sr. No.	Course Name	Topic/subject to be added	Justification for the topic/subject to be added
1	BE-Electrical Engineering	Non-linear Control Systems	The topic named "Non-linear control systems" has vast applicability in current world. This topic needs to be included in the curriculum of electrical engineering.

Sr. No.	Course Name	Topic/subject to be added	Justification for the topic/subject to be added

Dr. S. S. Khonde
HOD E&TC

Dr. S. S. Khot
Principal



SAVITRIBAI PHULE PUNE UNIVERSITY




FACULTY OF ENGINEERING

SYLLABUS FOR B.E. ELECTRICAL ENGINEERING (2015 course)

WITH EFFECT FROM YEAR 2018-2019

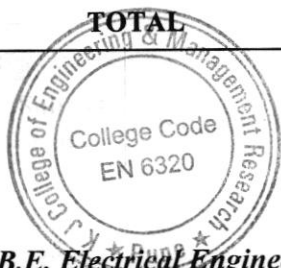



Dr. Suhas S. Khot
Principal
K. J. Somaiya Institute of Engineering
& Management Research
S.No.25,27, Kondhwa-Saswad Road,
Near Bopdev Ghat, Pune-411 048

Savitribai Phule Pune University
FACULTY OF ENGINEERING

B.E. Electrical Engineering (2015 Course)
(w.e.f. 2018-2019)

SEMESTER-I													
Sr No	Subject Code	Subject Title	Teaching Scheme (Hrs/Week)			Examination Scheme (Marks)					Total Marks	Credit	
			TH	PR	TU	PP		TW	PR	OR		TH / TU	PR + OR
						In Sem	End Sem						
1	403141	<u>Power System Operation and Control</u>	03	02	--	30	70	25	--	25	150	03	01
2	403142	<u>PLC and SCADA Applications</u>	04	02	--	30	70	25	50	--	175	04	01
3	403143	<u>Elective I</u>	03	02	--	30	70	25	--	--	125	03	01
4	403144	<u>Elective II</u>	03	--	--	30	70	--	--	--	100	03	--
5	403145	<u>Control System II</u>	03	02	--	30	70	25	--	25	150	03	01
6	403146	<u>Project I</u>	--	--	02	--	--	--	--	50	50	02	--
	403152	<u>Audit Course V</u>											
TOTAL			16	08	02	150	350	100	50	100	750	18	04
SEMESTER-II													
Sr No	Subject Code	Subject Title	Teaching Scheme (Hrs/Week)			Examination Scheme (Marks)					Total Marks	Credit	
			TH	PR	TU	PP		TW	PR	OR		TH / TU	PR + OR
						In Sem	End Sem						
1	403147	<u>Switchgear and Protection</u>	03	02	--	30	70	50	--	25	175	03	01
2	403148	<u>Power Electronic Controlled Drives</u>	04	02	--	30	70	25	50	--	175	04	01
3	403149	<u>Elective III</u>	03	02	--	30	70	25	--	25	150	03	01
4	403150	<u>Elective IV</u>	03	--	--	30	70	--	--	--	100	03	--
5	403151	<u>Project II</u>	--	--	06	--	--	50	--	100	150	06	--
	403153	<u>Audit Course VI</u>											
TOTAL			13	06	06	120	280	150	50	150	750	19	03



S. Khot
Dr. Suhas S. Khot
Principal

K. J. College of Engineering
& Management Research
S.No.25,27, Kondhwa-Saswad Road,
Near Bopdev Ghat, Pune-411045

B.E. Electrical Engineering (2015 Course) – Savitribai Phule Pune University

403145: Control System II

Teaching Scheme	Credits	Examination Scheme [150 Marks]
Theory : 03 Hr/Week	03	In Sem : 30 Marks
Practical : 02 Hr/Week	01	End Sem : 70 Marks
		Oral : 25 Marks
		Term work : 25 Marks

Prerequisite: Basic concepts of Control System, Transfer Function, Pole zero plot.

Course Objective: The course aims to:-

- Explain the basic digital control system and the concept of sampling and reconstruction.
- Elaborate the concept of state and to be able to represent a system in the state space format.
- Solve the state equation and familiarize with STM and its properties.
- Design a control system using state space techniques including state feedback control and full order observer.

Course Outcome: Upon successful completion of this course, the students will be able to :-

1. Recognize the importance of digital control system.
2. Derive pulse transfer function.
3. Analyze digital controllers.
4. Convert system in state space format.
5. Solve state equation.
6. Design observer for system.

Prerequisite: Basic concepts of Control System, Transfer Function, Pole zero plot.

Unit 01 : Digital Control System (06 Hrs)

Introduction, Configuration of the basic digital control system. Advantages and limitations of digital control; data conversion and quantization, Sampling and Reconstruction processes, Shannon's Sampling theorem, practical aspects of choice of sampling rate. Zero order hold (ZOH) and its transfer function, Basic concepts and transfer function of first order hold.

Unit 02 : Z-transform and Pulse-transfer-function (06 Hrs)

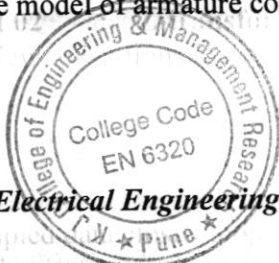
Review of z-transform, Inverse z-transform, difference equations and solution using z transform method. Pulse transfer function and Z-transfer function, General procedure for obtaining Pulse-transfer-function, pulse transfer function of ZOH.

Unit 03 : Stability Analysis (06 Hrs)

Sampled data closed loop systems, characteristic equation, causality and physical realizability of discrete data system, realization of digital controller by digital programming, direct digital programming, cascade digital programming, parallel digital programming. Mapping between S-plane and Z-plane, stability analysis of closed loop system in z-plane using Jury's test, Bilinear Transformation.

Unit 04 : Introduction to state space analysis (06 Hrs)

Important definitions – state, state variable, state vector, state space, state equation, output equation. State space representation for electrical and mechanical system, n^{th} order differential equation and transfer function. Conversion of transfer function to state model and vice versa. State model of armature control DC motor



Unit 05 : Solution of state equations**(06 Hrs)**

Concept of diagonalization, eigen values, eigenvectors, diagonalization of system matrices with distinct and repeated eigen values, Vandermonde matrix.

Solution of homogeneous and non-homogeneous state equation in standard form, state transition matrix, its properties, Evaluation of STM using Laplace transform method and infinite series method Cayley Hamilton theorem.

Unit 06 : Design of Control System Using State Space Technique:**(06 Hrs)**

Concept of controllability and observability, controllability and observability Tests, condition for controllability and observability from the system matrices in Canonical form, Jordan canonical form, effect of pole zero cancellation on the controllability and observability of the system, duality property. Pole placement design by state variable feedback. Necessity of an observer, design of full order observer.

Guidelines for Instructor's Manual

Instructor's Manual should contain following related to every experiment –

- Theory related to the experiment.
- Connection diagram /circuit diagram.
- Basic MATLAB instructions for control system/ Simulink basics.
- Observation table/ Expected simulation results.
- Sample calculations for one/two reading.
- Result table.

Guidelines for Student's Lab Journal

The Student's Lab Journal should contain following related to every experiment –

- Theory related to the experiment.
- Circuit diagram/Simulink diagram/MATLAB program.
- Observation table/ simulation results.
- Sample calculations for one/two reading.
- Result table, Conclusion.
- Few short questions related to the experiment.

Guidelines for Laboratory Conduction

- Assessment must be based on understanding of theory, attentiveness during practical session.
- Assessment should be done how efficiently student is able to perform experiment/simulation and get the results.
- Understanding fundamentals and objective of experiment, timely submission of journal.
- Result table.

List of Experiments

Any 8 experiments out of the list given below:

1. Plotting of discrete time wave forms a) sin, b) Unit step c) Exponential
2. Effect of sampling and verification of sampling theorem
3. Software programming for determination of STM of Discrete Time system.
4. Design and analysis of digital position control system.
5. Software programming for determination of state space representation for given transfer function and vice versa.
6. Check for observability and controllability in MATLAB
7. Verify State Feedback control using pole placement.
8. Convert a continuous time system to digital control system and check response using software.
9. Design state observer and validate it by software.
10. Software programming for determination of STM.

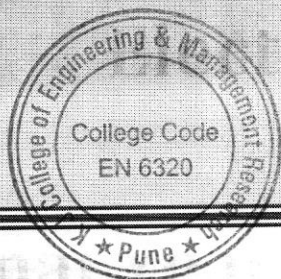
SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE



Faculty of Science and Technology

**Board of Studies
Electrical Engineering**

**Syllabus
Final Year Electrical Engineering
(2019 Course)
(w.e.f. 2022-2023)**



Suhas S. Khot
Dr. Suhas S. Khot
Principal
K. J. College of Engineering
& Management Research
S.No.23.27, Kondhwa-Saswad Road,
Near Bopdev Ghat, Pune-411 048

BE Electrical (2019 Course)

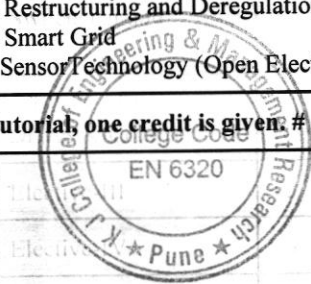
SEM-I

Course Code	Course Name	Teaching Scheme				Examination Scheme						Credit				
		Th	Pr	Tu	PW	ISE	ESE	TW	PR	OR	Total	Th	Pr	Tu	PW	Total
403141	Power System Operation & Control	3	2	-	-	30	70	25	-	25	150	3	1	-	-	4
403142	Advanced Control System	3	2	-	-	30	70	-	-	50	150	3	1	-	-	4
403143	Elective-I	3	2	-	-	30	70	-	-	25	125	3	1	-	-	4
403144	Elective-II	3	-	2*	-	30	70	25	-	-	125	3	-	1	-	4
403145	Project Stage-I	-	-	-	4	-	-	50	-	50	100	-	-	-	2	2
403146	MOOCs	-	-	-	-	-	-	50	-	-	50	-	-	-	2	2
403147	Audit Course-VII	2#	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		12	6	2	4	120	280	150	-	150	700	12	3	1	4	20
403143: Elective-I				403144: Elective-II				403147: Audit Course-VII								
403143A: PLC and SCADA 403143B: Power Quality Management 403143C: High Voltage Engineering 403143D: Robotics and Automation				403144A : Alternate Energy System 403144B : Electrical & Hybrid Vehicle 403144C : Special-purpose Machines 403144D: HVDC & FACTS				403147 A: German Language I 403147B: Engineering Economics I 403147C: Sustainability(IGBC)								

SEM-II

Course Code	Course Name	Teaching Scheme				Examination Scheme						Credit				
		Th	Pr	Tu	PW	ISE	ESE	TW	PR	OR	Total	Th	Pr	Tu	PW	Total
403148	Switchgear and Protection	3	2	-	-	30	70	25	-	50	175	3	1	-	-	4
403149	Advanced Electrical Drives & Control	3	2	-	-	30	70	25	50	-	175	3	1	-	-	4
403150	Elective-III	3	-	-	-	30	70	-	-	-	100	3	-	-	-	3
403151	Elective-IV	3	-	-	-	30	70	-	-	-	100	3	-	-	-	3
403152	Project stage II	-	-	-	12	-	-	100	-	50	150	-	-	-	6	6
403153	Audit course VIII	2#	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		12	4	-	12	120	280	150	50	100	700	12	2	-	6	20
403150: Elective-III				403151: Elective-IV				403153: Audit Course-VIII								
403150 A : Digital Control System 403150 B : Restructuring and Deregulation 403 150 C: Smart Grid 403150 D: Sensor Technology (Open Elective)				403151A: EHV AC Transmission 403151B : Illumination Engineering 403151C: Electromagnetic Fields 403151D: AI and ML (Open Elective)				403153A: German Language II 403153B: Engineering Economics II 403153C: Green Building								

* For the tutorial, one credit is given. # Audit Course: Conduct over and above these lectures.



403142: Advanced Control System

Teaching Scheme			Credits		Examination Scheme	
Theory	03	Hrs/Week	Theory	03	ISE	30
Practical	02	Hrs/Week/Batch	Practical	01	ESE	70
					Oral	50

Prerequisite:

Control System Engineering, Matrix Algebra, Z-transform, and Laplace transform.

Course Objectives:

This course aims to:

1. Introduce concepts of modern control theory, analysis, and design.
2. Provide an overview of the digital control system and nonlinear control system.
3. Explore advanced control techniques at an introductory level.

Course Outcomes:

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

CO1: Explain compensation networks, common nonlinearities, the concept of state, sampling and reconstruction, and concepts of advanced controls (Understanding)

CO2: Determine transfer function from state model (Applying)

CO3: Test controllability and observability properties of the system (Evaluating)

CO4: Design compensators, state feedback controls, and observers for the system (Creating)

Unit 01	Compensator Design in Frequency Domain	06 hrs
approach to control system design, cascade compensation networks, phase-lead and phase-lag compensator designs using bode plot, physical realization of compensators.		
Unit 02	Nonlinear Control Systems	07 hrs
introduction to nonlinear systems, common nonlinearities, describing function method, describing function of an ideal relay, stability analysis with describing function, introduction to Lyapunov stability analysis (basic concepts, definitions, and stability theorem)		
Unit 03	Introduction to State-Space	08 hrs
Concept of state, state-space representation of dynamical systems in physical variable form, phase variable forms and Jordan / diagonal canonical form, conversion of the transfer function to state-space model and vice versa, state equation and its solution, state transition matrix and its properties, computation of state transition matrix by Laplace transform and Caley Hamilton method.		
Unit 04	State-Space Design	08 hrs



Suhas S. Khot
Dr. Suhas S. Khot
 Principal

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 & Management Research
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The concept of controllability and observability, Kalman's and Gilbert's tests for controllability and observability, effect of pole-zero cancellation, duality property, control system design using pole-placement using transformation matrix, direct substitution, and Ackermann's formula, State observers, design of a full-order observer.

Unit 05	Introduction to Digital Control System	08 hrs
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Basic block diagram of the digital control system, sampling and reconstruction, Shannon's Sampling theorem, zero-order hold and its transfer function, First-order hold (no derivation), characteristics equation, mapping between s-plane and z-plane, stability analysis in z-plane.

Unit 06	Advanced control system topics	08 hrs
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Concept of sliding mode control, equivalent control, chattering, sliding mode control based on reaching law, Introduction to adaptive control, adaptive schemes, and control problems Optimal control-linear quadratic regulator problem.

Text Books:

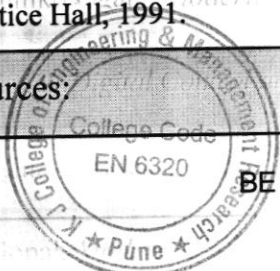
- | | |
|------|---|
| [T1] | Norman S. Nise, <i>Control System Engineering</i> , Sixth Edition, John Wily and Sons, Inc. 2011. |
| [T2] | Richard C. Dorf, Robert H. Bishop, <i>Modern Control Systems</i> , Twelfth Edition, Pearson Education. |
| [T3] | Benjamin C. Kuo, <i>Digital Control System</i> , Second Edition, Oxford University Press, 2003. |
| [T4] | I. J. Nagarath, M. Gopal, <i>Control System Engineering</i> , Fourth Edition, New Age International (P) Limited, Publishers |
| [T5] | A. Nagoor Kani, <i>Advanced Control Theory</i> , Third Edition, CBS Publishers and Distributes, 2020. |

Reference Books:

- | | |
|------|---|
| [R1] | Katsuhiko Ogata, <i>Modern Control Engineering</i> , Fifth Edition, Prentice-Hall, 2010. |
| [R2] | M. Gopal, <i>Digital Control and State Variable Methods</i> , Tata McGraw-Hill. |
| [R3] | K. Ogata, <i>Discrete-Time Control System</i> , Second Edition, PHI Pvt. Ltd. 2006 |
| [R4] | M. Gopal, <i>Modern Control Systems Theory</i> , Second Edition, New Age International (P) Limited, Publishers. |
| [R5] | Karl J. Åström, Björn Wittenmark, <i>Adaptive Control</i> , Second Edition, Dover Publications, Inc. New York |
| [R6] | C Edwards, Sarah K. Spurgeon, S Spurgeon, <i>Sliding Mode Control: Theory And Applications</i> , Taylor and Francis, 1998 |
| [R7] | Jean-Jacques E. Slotine, Jean-Jacques E.. Slotine, Weiping Li, <i>Applied Nonlinear Control</i> , Prentice Hall, 1991. |

Online Resources:

Dr. Suhas S. Khot
Principal
K. J. College of Engineering
& Management Research
S.No.25,27, Kondhwa-Saswad Road,
Near Bopdev Ghat, Pune-411 004



BE Electrical (2019 Course)



KJ's Educational Institute

K J COLLEGE OF ENGINEERING & MANAGEMENT RESEARCH

[Approved by AICTE, New Delhi, DTE Maharashtra & Affiliated to Savitribai Phule Pune University, Pune (ID No: PU/PN/Engg./378/2009)]

DTE College Code – EN 6320 Website: www.kjei.edu.in/kjcoemr E-mail:principalkjcoemr@gmail.com

Dr. Suhas S. Khot
B.E., M.E., Ph.D. (E&TC. Engg.)
Principal

Shri. Kalyan J. Jadhav
M. Com (Hons.)
Founder President

REF No. KJEI/KJCOEMR/AO/2021-22

Date: 09/05/2022

To,
Dy. Registrar
Academic Section.
Savitribai Phule Pune University,
Pune-411007

Subject: Regarding suggestion in the curriculum update of Mechanical Engineering.

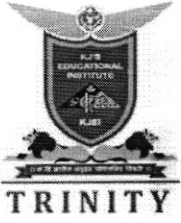
Respected Sir,

With reference to the above mentioned subject, we are suggesting to update the curriculum for the subject mentioned below as per the feedback taken from our stakeholders. We have analyzed the stakeholder's feedback for the year 2021-22, As per their suggestion, to compete with the technological upgradation of the current world we need to update the syllabi. So we request you to implement the suggestions given in detail below to our curriculum in consultation with respective BOS and the Dean. The detailed report is attached herewith for your information and necessary action.

Thanking you,



Principal
PRINCIPAL
KJ COLLEGE OF ENGINEERING & MANAGEMENT RESEARCH
Sr. No. 25 & 27, Bopdev Ghat,
Kondhwa-Saswad Road, Pune-411 048



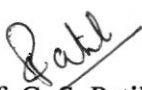
KJ'S EDUCATIONAL INSTITUTES
K J COLLEGE OF ENGINEERING AND MANAGEMENT
RESEARCH, PUNE

Sr. No. 25 & 27, Near. Khadi Machine Chowk, Kondhwa Annexe, Pune-48, Maharashtra


Suggestion Details with justification

Based on the stakeholder's feedback following suggestions were proposed. The details of the same with the branch, course, subject topic is mentioned below. Please submit the same to concern board of studies of university for updating in the curriculum.

Sr. No.	Course Name	Topic/subject to be added	Justification for the topic/subject to be added
1	BE-Mechanical Engineering	Integrated Manufacturing Processes	Syllabus till now was describing about the conventional manufacturing techniques, so we request you to include the modern and computerized integrated techniques for mechanical design.


Prof. G. S. Patil
HOD E&TC




Dr. S. S. Khot
Principal

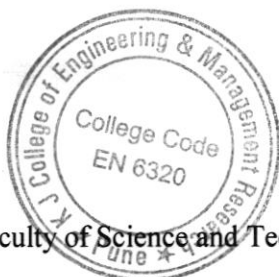
Savitribai Phule Pune University



Faculty of Science and Technology


Syllabus for Final Year of Mechanical Engineering

(Course 2015)



Faculty of Science and Technology

Mechanical Engineering


Dr. Suhas S. Khot
Principal

K. J. College of Engineering & Management Research
S.No.25,27, Kondhwa-Saswad Road,
Near Bopdev Ghat, Pune-411 048

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Savitribai Phule Pune University, Pune
BE (Mechanical Engineering) (2015 Course) Semester – VII

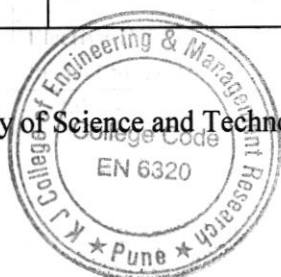
Code	Subject	Teaching Scheme Hrs / week			Examination Scheme					Total Marks	Credits		
		Lect	Tut	Pract	In-Sem	End-Sem	TW	PR	OR		TH	TW	OR/ PR
402041	Hydraulics and Pneumatics	3	-	2	30	70	25	-	25	150	3	-	1
402042	CAD CAM Automation	3	-	2	30	70	25	50	-	175	3	-	1
402043	Dynamics of Machinery	4	-	2	30	70	25	-	25	150	4	-	1
402044	Elective-I	3	-	2	30	70	25	-	-	125	3	1	-
402045	Elective-II	3	-	-	30	70	-	-	-	100	3	-	-
402046	Project Stage-I	-	-	4	-	-	25	-	25	50	-	1	1
Total		16	-	12	150	350	125	50	75	750	16	2	4
												22	

B. E. (Mechanical Engineering) (2015 Course) Semester – VIII

Code	Subject	Teaching Scheme Hrs / week			Examination Scheme					Total Marks	Credits		
		Lect	Tut	Pract	In-Sem	End-Sem	TW	PR	OR		TH	TW	OR/ PR
402047	Energy Engineering	3	-	2	30	70	25	-	25	150	3	-	1
402048	Mechanical System Design	4	-	2	30 (1.5 hrs)	70 (3 hrs)	25	-	50	175	4	-	1
402049	Elective-III	3	-	2	30	70	25	-	-	125	3	1	-
402050	Elective-IV	3	-	-	30	70	-	-	-	100	3	-	-
402051	Project Stage-II	-	-	12	-	-	100	-	100	200	-	3	3
Total		13	-	18	120	280	175	-	175	750	13	4	5
												22	

Elective – I				Elective – II			
Code	Subject			Code	Subject		
402044 A	Finite Element Analysis			402045 A	Automobile Engineering		
402044 B	Computational Fluid Dynamics			402045 B	Operation Research		
402044 C	Heating Ventilation and Air Conditioning			402045 C	Energy Audit and Management		
				402045 D	Open Elective**		
Elective – III				Elective – IV			
402049 A	Tribology			402050 A	Advanced Manufacturing Processes		
402049 B	Industrial Engineering			402050 B	Solar & Wind Energy		
402049 C	Robotics			402050 C	Product Design and Development		
				402050 D	Open Elective**		

Faculty of Science and Technology



Mechanical Engineering

Dr. Suhas S. Khot
Principal
K. J. College of Engineering
& Management Research
S.No.25,27, Kondhwa-Saswad Road,
Near Bopdev Ghat, Pune-411 048

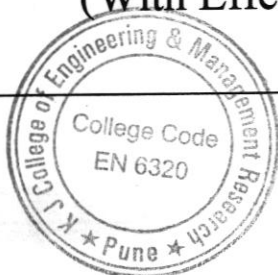
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Savitribai Phule Pune University
Faculty of Science & Technology



Curriculum/Syllabus
For
Fourth Year
Bachelor of Engineering
(Choice Based Credit System)
Mechanical Engineering
(2019 Course)

Board of Studies – Mechanical and Automobile Engineering
(With Effect from Academic Year 2022-23)



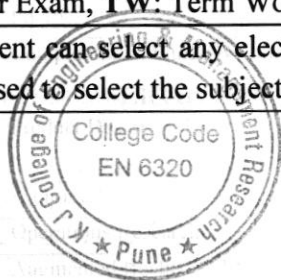
Suh
Dr. Suhas S. Khot
Principal
K. J. College of Engineering
& Management Research
S.No.25,27, Kondhwa-Saswad Road,
Near Bopdev Ghat, Pune-411 005

Savitribai Phule Pune University
Board of Studies - Mechanical and Automobile Engineering
 Undergraduate Program – Final Year Mechanical Engineering (2019 pattern)

Course Code	Course Name	Teaching Scheme (Hrs./week)			Examination Scheme and Marks						Credit			
		TH	PR	TUT	ISE	ESE	TW	PR	OR	TOTAL	TH	PR	TUT	TOTAL
Semester-VII														
402041	Heating Ventilation Air-Conditioning and Refrigeration	3	2	-	30	70	-	-	25	125	3	1	-	4
402042	Dynamics of Machinery	3	2	-	30	70	-	-	25	125	3	1	-	4
402043	Turbomachinery*	2	2	-	-	50	25	-	25	100	2	1	-	3
402044	Elective – III	3	-	-	30	70	-	-	-	100	3	-	-	3
402045	Elective - IV	3	-	-	30	70	-	-	-	100	3	-	-	3
402046	Data Analytics Laboratory	-	2	-	-	-	50	-	-	50	-	1	-	1
402047	Project (Stage - I)	-	4	-	-	-	50	-	50	100	-	2	-	2
402054	Audit Course VII ^s	-	-	-	-	-	-	-	-	-	-	-	-	NC
Total		14	12	-	120	330	125	-	125	700	14	6	-	20
Semester-VIII														
402048	Computer Integrated Manufacturing	3	2	-	30	70	25	-	25	150	3	1	-	4
402049	Energy Engineering	3	2	-	30	70	25	-	25	150	3	1	-	4
402050	Elective - V	3	-	-	30	70	-	-	-	100	3	-	-	3
402051	Elective - VI	3	-	-	30	70	-	-	-	100	3	-	-	3
402052	Mechanical Systems Analysis Laboratory	-	2	-	-	-	25	-	25	50	-	1	-	1
402053	Project (Stage - II)	-	10	-	-	-	100	-	50	150	-	5	-	5
402055	Audit Course VIII ^s	-	-	-	-	-	-	-	-	-	-	-	-	NC
Total		12	16	-	120	280	175	-	125	700	12	8	-	20
Elective-III						Elective-V								
402044A	Automobile Design	402050A		Quality and Reliability Engineering										
402044B	Design of Heat Transfer Equipments	402050B		Energy Audit and Management										
402044C	Modern Machining Processes	402050C		Manufacturing Systems and Simulation										
402044D	Industrial Engineering	402050D		Engineering Economics and Financial Management										
402044E	Internet of Things	402050E		Organizational Informatics										
402044F	Computational Fluid Dynamics	402050F		Computational Multi Body Dynamics										
Elective-IV						Elective-VI								
402045A	Product Design and Development	402051A		Process Equipment Design										
402045B	Experimental Methods in Thermal Engineering	402051B		Renewable Energy Technologies										
402045C	Additive Manufacturing	402051C		Automation and Robotics										
402045D	Operations Research	402051D		Industrial Psychology and Organizational Behavior										
402045E	Augmented Reality and Virtual Reality	402051E		Electrical and Hybrid Vehicle										
Audit Courses														
402054A	Yoga Practices	402054B		Stress Management										
402055A	Managing Innovation	402055B		Operations Management										

Abbreviations: TH: Theory, PR: Practical, TUT: Tutorial, ISE: In-Semester Exam, ESE: End-Semester Exam, TW: Term Work, OR: Oral

- Student can select any elective subjects from the list given as per his/her choice. However, it is advised to select the subjects from within a group identified for specialization.



Principal
 K. J. College of Engineering
 & Management Research
 S.No.25,27, Kondhwa-Saswad Road,
 Near Bopdev Ghat, Pune-411 013