|| JAI SRI GURUDEV||
Sri Adhichunchanagiri Shikshana Trust(R)

SJBIT

S J B Institute of Technology

BGS Health & Education City, Dr. Vishnuvardhan Road, Kengeri, Bengaluru-560060

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Accredited by NAAC, New Delhi with 'A' Grade. Recognized by UGC, New Delhi with 2(f) and 12(B). Certified by ISO 9001-2015

Department of Mathematics

Course Outcomes and CO-PO-PSO Articulation Matrix

Semester-I/II

Subject: Engg. Mathematics - I	Subject Code: 15MAT11

Course Outcomes	
CO1	Know the technique of successive differentiation and finding nth derivative of standard functions and also to Understand the various concepts and interpretations of Polar curves.
CO2	Understanding the effective way of representing complicated functions using Taylor's and Maclaurin's series. Calculate the limit of a function at a point numerically and algebraically using L'Hospital's rule. Also to know the use of partial derivatives to calculate rates of change of multivariate functions.
CO3	Analyze position, velocity, and acceleration in two or three dimensions using the calculus of vector valued functions.
CO4	Know the derivations of standard reduction formulae in Integral calculus. Recognize and solve first-order ordinary differential equations, Newton's law of cooling
CO5	To use matrices techniques for solving systems of linear equations in the different areas of Linear Algebra.

CO-PO-PSO Mapping

COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	3													
CO2	3	3													
CO3	2	3													
CO4	2	3													
CO5	3	2													
Average	2.4	2.8													

Subject: Engg. Mathematics - II	Subject Code:15MAT21

Course Outcomes	
CO1	Understanding the method of solving higher order differential equations and to apply it to solve electrical circuits, forced oscillations of mass spring and elementary heat transfer.
CO2	To able solve partial differential equations in fluid mechanics, electromagnetic theory and heat transfer.
CO3	Evaluate double and triple integrals to find area, volume, mass and moment of inertia of plane and solid region.
CO4	Evaluation of beta and gamma function and its application.
CO5	Use Laplace transform to determine general or complete solutions to linear ODE.

COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2													
CO2	3	3													
CO3	3	2													
CO4	3	3													
CO5	3	2													
Average	3	2.6													

HOD

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BGS Health and Education City, Kengeri, Bangalore-560 060

Course Outcomes and CO-PO-PSO Articulation Matrix

Semester-I/II

Subject: Engineering Physics	**Subject Code:**15PHY12/22

Course Outcomes	
CO1	Gain Knowledge about Modern physics and quantum mechanics and will update the basic concepts to implement the skills in problem solving and technology.
CO2	Study of material properties and their applications is the prime role to understand and use in engineering applications and studies to solve the problems.
CO3	Study Lasers and Optical fibers and its applications to import knowledge and to develop skills and to use modern instruments in the engineering applications and to solve the problems..
CO4	Understand Crystal structure and applications to boost the technical skills, its applications and to solve the problems.
CO5	Expose shock waves concept and its applications to bring latest technology to the students at the at initial stages to develop research orientation programs and understand basic concepts of Nano science and technology to solve the engineering problems.

CO-PO-PSO Mapping

COs	**POs**												**PSOs**		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
CO1	2	2													
CO2	2	2													
CO3	2	2													
CO4	2	1													
CO5	2	1													
Average	2	1.6													

Head of the Department
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Subject: Engineering Physics Lab												**Subject Code:** 15PHYL17/27		
Course Outcomes														
CO1	Develop skills to impart practical knowledge in real time solution.													
CO2	Understand principle, concept, working and application of new technology and comparison of results with theoretical calculations and Design new instruments with practical knowledge.													
CO3	Gain knowledge of new concept in the solution of practical oriented problems and to understand more deep knowledge about the solution to theoretical problems.													
CO4	Understand measurement technology, usage of new instruments and real time applications in engineering studies.													
CO-PO-PSO Mapping														
Cos	**Pos**												**PSOs**	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
CO1	3			2											
CO2	3			3											
CO3	3			3											
CO4	3			3											
Average	**3**			**3**											

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Course Outcomes and CO-PO-PSO Articulation Matrix

Semester-I/II

Subject: Engg. Chemistry	Subject Code:15CHE12/22
Course Outcomes	
CO1	Electrochemical and concentration cells. Classical & modern batteries and fuel cells.
CO2	Causes & effects of corrosion of metals and control of corrosion. Modification of surface properties of metals to develop resistance to corrosion, wear, tear, impact etc. by electroplating and electro less plating.
CO3	Production & consumption of energy for industrialization of country and living standards of people. Utilization of solar energy for different useful forms of energy.
CO4	Replacement of conventional materials by polymers for various applications.
CO5	Boiler troubles; sewage treatment and desalination of sea water. Over viewing of synthesis, properties and applications of Nanomaterials.

CO-PO-PSO Mapping

COs	POs														
	1	2	3	4	5	6	7	8	9	10	11	12			
CO1	3														
CO2	3														
CO3	1														
CO4	2														
CO5							2								
Average	1.8						2								

Subject: Engineering Chemistry Lab	Subject Code:15CHEL17/27
Course Outcomes	
CO1	Will have the knowledge in, Handling different types of instruments for analysis of materials using small quantities of materials involved for quick and accurate results
CO2	Analyze and Carrying out different types of titrations for estimation of concerned in materials using comparatively more quantities of materials involved for good results

CO-PO-PSO Mapping

COs	POs														
	1	2	3	4	5	6	7	8	9	10	11	12			
CO1	2			1											
CO2	2			1											
Average	2			1											

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CO-PO-PSO Mapping															
Cos	Pos												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	1					1	2					1			
CO2	1					1	2					1			
CO3						1	2					1			
CO4	1					1	2					1			
Average	1					1	2					2			

Subject: Constitution of India, Professional Ethics & Human Rights	Subject Code: 15CPH28 / 28

Course Outcomes	
CO1	Extend the general knowledge and legal literacy and thereby to take up competitive examinations
CO2	Outline the state and central policies, fundamental duties
CO3	Explain the Electoral Process & Special provisions
CO4	Outline the powers and functions of Municipalities, Panchayats and Co-operative Societies
CO5	Extend the knowledge of Engineering ethics and responsibilities of Engineers
CO6	Explain about basic human rights in India

CO-PO-PSO Mapping															
Cos	Pos												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1						2						1			
CO2						2						1			
CO3						2						1			
CO4						2						1			
CO5						2		2				1			
CO6						2						1			
Average						2		2				1			

HOD

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Department of Civil Engineering

Course Outcomes and CO-PO-PSO Articulation Matrix

Semester-I/II

Subject: Elements of Civil Engineering and Engineering Mechanics	**Subject Code:** 15CIV13/23
Course Outcomes	
CO1	Outline the various fields in Civil Engineering and its importance on infrastructure.
CO2	Analyse the force system applied to the structural members under static condition.
CO3	Analyse effect of forces on system
CO4	Evaluate the effect of center of gravity and moment of inertia for given structure.
CO5	Analyse the force system and dynamic condition

CO-PO-PSO Mapping

Cos	**Pos**												**PSOs**		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
CO1	2														
CO2	3	3													
CO3	3	3													
CO4	3	3													
CO5	2	2													
Average	**2.6**	2.75													

Subject: Environmental Studies	**Subject Code: 15CIV18 / 28**
Course Outcomes	
CO1	Explain the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale
CO2	Analyze environmental related problems through critical thinking & observational skills.
CO3	Evaluating a relationship between biotic & abiotic components
CO4	Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues

CO-PO-PSO Mapping															
Cos	Pos												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	1					1	2					1			
CO2	1					1	2					1			
CO3						1	2					1			
CO4	1					1	2					1			
Average	1					1	2					2			

Subject: Constitution of India, Professional Ethics & Human Rights	Subject Code: 15CPH28 / 28

Course Outcomes	
CO1	Extend the general knowledge and legal literacy and thereby to take up competitive examinations
CO2	Outline the state and central policies, fundamental duties
CO3	Explain the Electoral Process & Special provisions
CO4	Outline the powers and functions of Municipalities, Panchayats and Co-operative Societies
CO5	Extend the knowledge of Engineering ethics and responsibilities of Engineers
CO6	Explain about basic human rights in India

CO-PO-PSO Mapping															
Cos	Pos												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1						2						1			
CO2						2						1			
CO3						2						1			
CO4						2						1			
CO5						2		2				1			
CO6						2						1			
Average						2		2				1			

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Department of Information Science and Engineering

Course Outcomes and CO-PO-PSO Articulation Matrix

Semester-I/II

Subject: Programming in C & Data Structures	Subject Code: 15PCD13/23
Course Outcomes	
CO1	Achieve Knowledge on computers and basic concepts of networks.
CO2	Apply the basic principles of design and development of C Programming.
CO3	Design and development of modular programming skills.
CO4	Demonstrate Arrays and Strings in C programming concepts.
CO5	Illustrate the basic concepts of Structures, unions, Pointers and Preprocessor Directives.

CO-PO-PSO Mapping

Cos	Pos												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	2										2	3	2
CO2	3	3	2	3									2	3	3
CO3	2	3	3	2	2								2	2	3
CO4	2	3	3	2									2	2	3
CO5	3	2	2	2									2	3	2
Average	2.6	2.6	2.6	2.25	2								2	2.6	2.6

Subject: Computer Programming Lab	Subject Code: 15CPL16/26
Course Outcomes	
CO1	Understand the knowledge on simple applications in C using conditional statements and looping concepts
CO2	Demonstrate and implement applications using arrays and strings
CO3	Apply knowledge on functions, recursions, pointers and structures.

CO-PO-PSO Mapping

Cos	Pos												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	2	2									3	3	2
CO2	3	3	2	2									3	3	3
CO3	3	3	3	3	1								3	3	3
Average	3.0	2.67	2.33	2.33	1.0								3	3.0	2.67

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Department of Computer Science and Engineering

Course Outcomes and CO-PO-PSO Articulation Matrix

Semester-I/II

Subject: Programming in C & Data Structures	**Subject Code:** 15PCD13/23

Course Outcomes

CO1	Achieve Knowledge on computers and basic concepts of networks.
CO2	Apply the basic principles of design and development of C Programming.
CO3	Design and development of modular programming skills.
CO4	Demonstrate Arrays and Strings in C programming concepts.
CO5	Illustrate the basic concepts of Structures, unions, Pointers and Pre-processor Directives.

CO-PO-PSO Mapping

Cos	**Pos**												**PSOs**		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
CO1	3	2	2										2	3	2
CO2	3	3	2	3									2	3	3
CO3	2	3	3	2	2								2	2	3
CO4	2	3	3	2									2	2	3
CO5	3	2	2	2									2	3	2
Average	**2.6**	**2.6**	**2.6**	**2.25**	**2**								**2**	**2.6**	**2.6**

Subject: Computer Programming Lab	**Subject Code: 15CPL16/26**

Course Outcomes

CO1	Understand the knowledge on simple applications in C using conditional statements and looping concepts
CO2	Demonstrate and implement applications using arrays and strings
CO3	Apply knowledge on functions, recursions, pointers and structures.

CO-PO-PSO Mapping

Cos	**Pos**												**PSOs**		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
CO1	3	2	2	2									3	3	2
CO2	3	3	2	2									3	3	3
CO3	3	3	3	3	1								3	3	3
Average	**3.0**	**2.67**	**2.33**	**2.33**	**1.0**								**3**	**3.0**	**2.67**

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Course Outcomes and CO-PO-PSO Articulation Matrix

Semester-I/II

Subject: ELEMENTS OF MECHANICAL ENGINEERING		Subject Code:15EME14/24
Course Outcomes		
CO1	Recognize different sources of energy and their conversation process and different types of boilers.	
CO2	Demonstrate the various turbines and IC engines.	
CO3	Discuss Metal removal process using Lathe, drilling, Milling Robotics and Automation.	
CO4	Fair understanding of application and usage of various engineering materials.	
CO5	Explain the refrigeration and air-conditioning systems	

CO-PO-PSO Mapping

Cos	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2													
CO2	2	2													
CO3	3	3													
CO4	3	2													
CO5	2	3													
Average	2.6	2.4													

Subject: COMPUTER AIDED ENGINEERING DRAWING		Subject Code:15CED14/24
Course Outcomes		
CO1	Grasp the usage of tool bars used in CAD software, Co-ordinate system, Reference planes, BIS conventions of Engineering Drawing, Orthographic projections of points & lines.	
CO2	Understand the Orthographic projections of Points in all the four quadrants and lines in first angle	
CO3	Understand the Orthographic projections of plane surfaces in different positions by change of position method using first angle projections.	
CO4	Understand the Orthographic projections of prisms, pyramids, regular tetrahedron ,Hexahedron, cylinders and cones in different positions using first angle projections.	
CO5	Identify the Development of lateral surfaces of prisms, pyramids, cylinders and cones. and Isometric projection of Polygons.	

CO-PO-PSO Mapping

Cos	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3														
CO2		3													

CO3			3		3							1			
CO4					3							1			
CO5					3							1			
Average	3	3	3		3							1			

Subject: Workshop Practice		**Subject Code:** 15WSL16/26
Course Outcomes		
CO1	Demonstrate and produce different types of fitting models.	
CO2	Gain knowledge of development of sheet metal models with an understanding of their applications.	
CO3	Perform soldering and welding of different sheet metal & welded joints.	
CO4	Understand the Basics of Workshop practices.	

CO-PO-PSO Mapping

COs	**POs**												**PSOs**		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
CO1	2	2											3		
CO2	3			2									3		
CO3	3	2										2	3		
CO4	3	2											3		
Average	3	2		2								2	3		

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Department of Electrical & Electronics Engineering

Course Outcomes and CO-PO-PSO Articulation Matrix

Semester-I/II (Aca. Year 2015-16)

Subject: Basic Electrical Engineering		**Subject Code:**15ELE15/25
Course Outcomes		
CO1	Understand the basic concepts of DC circuits and Magnetic circuits and also able to solve problems related to DC and magnetic circuits.	
CO2	Analysis of Single Phase and three phase AC Circuits and the representation of alternating quantities and also determining the power and other parameters in these circuits	
CO3	Explain the construction, basic principle of operation, applications and also determine performance parameters of electrical Machines.	
CO4	Practice Electrical Safety Rules & standards and types of electrical wiring and domestic earthing.	

CO-PO-PSO Mapping

COs	**POs**												**PSOs**		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
CO1	3	2													
CO2	3	2				2									
CO3	3	2				2									
CO4	2					2		2							
Average	2.75	2				2		2							

Co-ordinator
Mr. Kubera U

HOD
Dr. Babu N V

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Department of Electronics and Communication Engineering

Course Outcomes and CO-PO-PSO Articulation Matrix

Semester-I/II

Subject: Basic Electronics	**Subject Code: 15ELN15/25**

Course Outcomes	
CO1	Ability to apply the applications of diode in rectifiers, filter circuits and BJT
CO2	Ability to analyse the biasing of BJT. Design simple circuits like amplifiers (inverting and non inverting), comparators, adders, integrator and differentiator using OPAMPS
CO3	Understand the basic concepts of number systems .Design different building blocks in digital electronics using logic gates and implement simple logic function using basic universal gates
CO4	Analyse the functioning of flip-flops. Describe the architecture and interfacing of microcontroller
CO5	Understand the functioning of a communication system ,analyse different modulation technologies. Understand the basic principles of different types of Transducers.

CO-PO-PSO Mapping

Cos	**Pos**												**PSOs**		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
CO1	2	2											2		
CO2	2	2	2										2		
CO3	2	2	2										2		
CO4	2	2											2		
CO5	2	2											2		
Average	2	2	2										2		

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