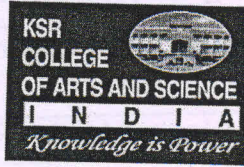


**K.S. RANGASAMY COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS)
TIRUCHENGODE-637 215**



**DEPARTMENT OF PHYSICS
MASTER OF SCIENCE (PHYSICS)
PROGRAMME OUTCOMES (PO)**

After completion of the programme, the graduates will be able to

- PO 1: Describe the advanced concepts in theoretical and experimental Physics.
- PO 2: Utilize the new concepts in thrust areas of domain to take research as a career.
- PO 3: Apply the domain knowledge to understand the nature of Universe.
- PO 4: Analyze and create the solutions for real time problems in various areas of physical science.
- PO 5: Formulate the multidisciplinary knowledge to kindle research interest for the benefit of society.

PROGRAMME SPECIFIC OUTCOMES (PSO)

After completion of the programme, the graduates will be able to

- PSO 1: Demonstrate the laws and nature of various physical phenomena.
- PSO 2: Explain the advanced theories and models in various areas of physical science.
- PSO 3: Apply the theories learnt and the skills acquired to solve multifaceted problems in Physics.
- PSO 4: Utilize the analytical and computational skills for solving real time problems.
- PSO 5: Formulate the multidisciplinary knowledge for creative synthesis, individual thoughts and collaborative action to face the global challenges.

PRINCIPAL
K. S. Rangasamy College of Arts & Science
(Autonomous)
TIRUCHENGODE - 637 215
Namakkal-Dt. Tamil Nadu, INDIA



Mr. M. PRASAD, M.Sc., M.B.A., MA
Controller of Examinations
K.S. Rangasamy College of Arts & Science (Autonomous)
Tiruchengode - 637 215, Tamilnadu, INDIA

| | | |
|-----------|------------------------------|--------------|
| 18PPHM101 | CORE I: MATHEMATICAL PHYSICS | SEMESTER - I |
|-----------|------------------------------|--------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Explain the concept of vector space and tensor for solving problems in dynamics. |
| CO 2 | Analyze the problems in matrix, Fourier series and transforms. |
| CO 3 | Know the concepts of some special functions and their solutions. |
| CO 4 | Analyze the complex functions for solving complex problems. |
| CO 5 | Apply group theory for understanding the molecular vibrations. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | H | M | H | H | H | M | H | H | H | M |
| CO 2 | M | M | H | H | H | M | H | H | M | M |
| CO 3 | H | M | H | H | H | L | H | H | H | H |
| CO 4 | L | H | H | H | M | L | H | H | H | M |
| CO 5 | H | H | M | M | H | M | H | H | H | H |

H-High; M-Medium; L-Low;

| | | |
|-----------|------------------------------|--------------|
| 18PPHM102 | CORE II: CLASSICAL MECHANICS | SEMESTER - I |
|-----------|------------------------------|--------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

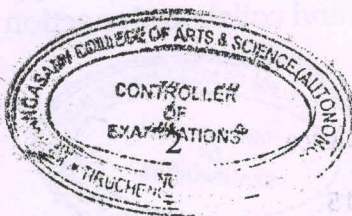
| | |
|------|---|
| CO 1 | Explain the motion of macroscopic objects through Lagrange equations. |
| CO 2 | Describe the Hamilton's formulation and generating functions |
| CO 3 | Evaluate the central force problems particularly planetary motion. |
| CO 4 | Analyze the kinematics of rigid body and Euler's equations of motion. |
| CO 5 | Apply the Hamilton-Jacobi theory for small oscillations. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | L | M | H | H | M | H | H | H | H | L |
| CO 2 | L | M | H | H | L | M | H | H | H | M |
| CO 3 | L | M | H | H | L | H | H | H | H | M |
| CO 4 | M | M | H | H | M | H | H | H | M | M |
| CO 5 | M | M | H | H | L | M | H | H | M | M |

H-High; M-Medium; L-Low;

PRINCIPAL
K. S. Rangasamy College of Arts & Science
(Autonomous)
TIRUCHENGODE - 637 215
Tamil Nadu, INDIA



Mr. M. PRASAD, M.Sc., M.B.A., M.Tech.
Controller of Examinations
K.S. Rangasamy College of Arts & Science (Autonomous)
Tiruchengode - 637-215, Tamil Nadu, India.

| | | |
|-----------|---------------------------------|--------------|
| 18PPHM103 | CORE III: STATISTICAL MECHANICS | SEMESTER - I |
|-----------|---------------------------------|--------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Explain the fundamentals of thermodynamics and its correlation with classical mechanics. |
| CO 2 | Apply the concepts of phase space, ensembles and Liouville's theorem. |
| CO 3 | Explain the classical distribution law, Gibbs' paradox and Partition function. |
| CO 4 | Know the various statistics and concept of Bosons. |
| CO 5 | Explain the concept of Fermion and advanced phenomena through quantum statistics. |

MAPPING

| PO/PSO | CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------|------|------|------|------|------|------|-------|-------|-------|-------|-------|
| | CO 1 | M | L | H | H | M | H | M | H | H | M |
| | CO 2 | M | L | H | H | M | H | M | H | H | M |
| | CO 3 | H | H | H | H | M | H | H | H | H | M |
| | CO 4 | H | M | H | H | M | H | H | H | H | M |
| | CO 5 | M | H | H | H | M | H | H | H | H | M |

H-High; M-Medium; L-Low;

| | | |
|-----------|-----------------------------------|--------------|
| 18PPHM104 | CORE VI: CONDENSED MATTER PHYSICS | SEMESTER - I |
|-----------|-----------------------------------|--------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

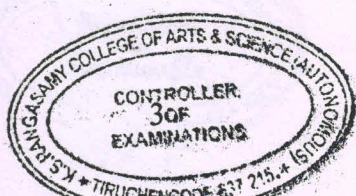
| | |
|------|--|
| CO 1 | Explain the concepts of crystal structure, X-ray diffraction and crystal defects. |
| CO 2 | Describe the nature of various bonds in solids, lattice vibrations and thermal properties of solids. |
| CO 3 | Apply the free electron theory and band theory to understand the properties of solids. |
| CO 4 | Describe the theories about magnetic and dielectric properties of materials. |
| CO 5 | Explain the impact of superconductivity on scientific world. |

MAPPING

| PO/PSO | CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------|------|------|------|------|------|------|-------|-------|-------|-------|-------|
| | CO 1 | H | H | H | H | H | M | M | H | H | H |
| | CO 2 | H | M | H | H | M | M | H | H | H | H |
| | CO 3 | H | M | H | H | L | M | H | H | H | M |
| | CO 4 | M | H | H | H | M | H | H | H | H | M |
| | CO 5 | H | H | H | H | H | M | H | H | H | H |

H-High; M-Medium; L-Low;

PRINCIPAL
K. S. Rangasamy College of Arts & Science
(Autonomous)
TIRUCHENGODE - 637 215
Tamil Nadu, INDIA



Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.
Controller of Examinations
K.S. Rangasamy College of Arts & Science (Autonomous)
Tiruchengode - 637 215, Tamil Nadu.

| | | |
|------------|---|---------------------|
| 18PPHMP101 | CORE PRACTICAL I: ADVANCED PHYSICS PRACTICAL I | SEMESTER - I |
|------------|---|---------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Explain and analyze the various physical phenomena such as deformation, polarizability, Hall effect, magnetization, X-ray diffraction, thermal and electrical conduction. |
| CO 2 | Apply various methods to determine the different physical parameter of given materials such as young's modulus, Hall co-efficient, band gap, carrier concentration, magnetic energy loss, magnetic susceptibility, crystalline parameters, conductivity, dielectric loss, and resistivity. |
| CO 3 | Apply different methods to determine the various physical constants such as Stefan's constant, Planck's constant, Rydberg's constant and change of electron. |

| | | |
|----------|-----------------------------------|---------------------|
| 18PLS101 | CAREER COMPETENCY SKILLS I | SEMESTER - I |
|----------|-----------------------------------|---------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Carry out mathematical calculations using shortcuts. |
| CO 2 | Calculate Problems on Ages with shortcuts. |
| CO 3 | Understand the core concepts of Pipes & Cisterns, Calendar & Clocks. |
| CO 4 | Obtain knowledge on shortcuts to Time & Work and Time & Distance. |
| CO 5 | Calculate Ratio & Proportion, Partnership with shortcuts. |

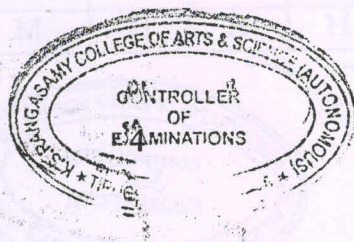
| | | |
|-----------|------------------------------------|----------------------|
| 18PPHM201 | CORE V: QUANTUM MECHANICS I | SEMESTER - II |
|-----------|------------------------------------|----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Explain the fundamentals of wave mechanics |
| CO 2 | Apply the concept of eigen energy values and energy states for real time systems in atomic and nuclear levels. |
| CO 3 | Evaluate the angular momenta of electron systems through operator formalism |
| CO 4 | Analyze the effect of perturbation on quantum systems using approximation methods. |
| CO 5 | Create symmetric and asymmetric functions for identical particles. |

PRINCIPAL
K. S. Rangasamy College of Arts & Science
(Autonomous)
TIRUCHENGODE - 637 215
Tamil Nadu, INDIA



Mr. M. PRASAD, M.Sc., M.B.A.,
Controller of Examinations,
K.S. Rangasamy College of Arts & Science (Autonomous)
Tiruchengode - 637 215, Tamil Nadu, India

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | M | H | H | L | M | H | H | L | H |
| CO 2 | M | M | H | H | L | H | H | H | M | H |
| CO 3 | M | M | H | H | M | H | H | H | M | H |
| CO 4 | H | H | H | H | M | H | H | H | M | H |
| CO 5 | H | H | H | H | M | H | H | H | M | M |

H-High; M-Medium; L-Low;

| | | |
|------------------|--|----------------------|
| 18PPHM202 | CORE VI: ELECTROMAGNETIC THEORY | SEMESTER - II |
|------------------|--|----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Describe the electrostatic force, field and potential for system of statics Charges |
| CO 2 | Apply the concept method of images and boundary value problem to dielectrics. |
| CO 3 | Analyze the magnetics force, field and potential for system of statics charges localized current distribution. |
| CO 4 | Evaluate the relation between electric and magnetic field, conservation laws and radiating systems. |
| CO 5 | Apply electromagnetic theories to explain about electromagnetic waves and its related phenomena. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | M | H | H | L | H | M | H | H | M |
| CO 2 | M | M | H | H | L | H | H | H | H | M |
| CO 3 | H | M | H | H | M | H | H | H | H | M |
| CO 4 | H | M | H | H | M | H | H | H | H | L |
| CO 5 | H | H | H | H | M | H | H | H | H | M |

H-High; M-Medium; L-Low;

| | | |
|-------------------|----------------------------------|----------------------|
| 18PPHEL201 | ELECTIVE I: MODERN OPTICS | SEMESTER - II |
|-------------------|----------------------------------|----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Describe the phenomena of polarization and double refraction. |
| CO 2 | Explain the principle, construction and working of various lasers. |
| CO 3 | Explain the fundamentals of optical fibers and related concepts. |
| CO 4 | Analyze the various optical non-linear phenomena. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | M | H | H | L | M | H | H | L | H |
| CO 2 | M | M | H | H | L | H | H | H | M | H |
| CO 3 | M | M | H | H | M | H | H | H | M | H |
| CO 4 | H | H | H | H | M | H | H | H | M | M |
| CO 5 | H | H | H | H | M | H | H | H | M | M |

H-High; M-Medium; L-Low;

| | | |
|------------------|--|----------------------|
| 18PPHM202 | CORE VI: ELECTROMAGNETIC THEORY | SEMESTER - II |
|------------------|--|----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Describe the electrostatic force, field and potential for system of statics Charges |
| CO 2 | Apply the concept method of images and boundary value problem to dielectrics. |
| CO 3 | Analyze the magnetics force, field and potential for system of statics charges localized current distribution. |
| CO 4 | Evaluate the relation between electric and magnetic field, conservation laws and radiating systems. |
| CO 5 | Apply electromagnetic theories to explain about electromagnetic waves and its related phenomena. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | M | H | H | L | H | M | H | H | M |
| CO 2 | M | M | H | H | L | H | H | H | H | M |
| CO 3 | H | M | H | H | M | H | H | H | H | M |
| CO 4 | H | M | H | H | M | H | H | H | H | L |
| CO 5 | H | H | H | H | M | H | H | H | H | M |

H-High; M-Medium; L-Low;

| | | |
|-------------------|----------------------------------|----------------------|
| 18PPHEL201 | ELECTIVE I: MODERN OPTICS | SEMESTER - II |
|-------------------|----------------------------------|----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Describe the phenomena of polarization and double refraction. |
| CO 2 | Explain the principle, construction and working of various lasers. |
| CO 3 | Explain the fundamentals of optical fibers and related concepts. |
| CO 4 | Analyze the various optical non-linear phenomena. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | M | M | M | H | H | M | M | M | H |
| CO 2 | M | H | M | M | H | M | H | H | M | H |
| CO 3 | H | H | M | M | H | M | H | H | L | H |
| CO 4 | L | H | L | H | H | M | H | H | L | H |
| CO 5 | L | H | L | H | H | M | M | M | L | H |

H-High; M-Medium; L-Low;

| | | |
|-------------------|---|----------------------|
| 18PPHMP201 | CORE PRACTICAL II: ADVANCED PHYSICS PRACTICAL II | SEMESTER - II |
|-------------------|---|----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Understand the various physical phenomena such as absorption, interference, polarization, reflection, dispersion and diffraction of EM wave as well as electrostatic attraction of charges, compressibility of liquid, photosensitivity. |
| CO 2 | Apply various methods to determine the different physical parameter of given materials such as ultrasonic velocity, magnetic susceptibility, and dielectric constant. |
| CO 3 | Analyze the characteristics of GM counter, optical fibers and photosensitive devices. |

| | | |
|--------------------|--|----------------------|
| 18PCSPHI201 | INTER DISCIPLINARY COURSE I: COMPUTER GRAPHICS AND MULTIMEDIA | SEMESTER - II |
|--------------------|--|----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|---|
| CO 1 | Know the concept of 2D transformations, image clipping methods and picture construction techniques. |
| CO 2 | Describe the 3D concepts and 3D modeling. |
| CO 3 | Know the fundamentals of multimedia and its various applications. |
| CO 4 | Describe the various multimedia network services and real time interchange. |
| CO 5 | Explain the design of various multimedia systems. |

PRINCIPAL
K. S. Rangasamy College of Arts & Science
(Autonomous)
TIRUCHENGODE - 637 215
Namakkal-Dt. Tamil Nadu, INDIA



Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.,
Controller of Examinations
K.S. Rangasamy College of Arts & Science (Autonomous)
Tiruchengode - 637 215, Tamil Nadu, India.

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | M | M | M | H | M | L | H | H | H |
| CO 2 | M | H | M | M | H | M | M | H | H | H |
| CO 3 | H | H | M | M | H | M | L | H | H | H |
| CO 4 | L | H | L | H | H | M | M | H | H | H |
| CO 5 | L | H | L | H | H | M | L | H | H | H |

H-High; M-Medium; L-Low;

| | | |
|---------------------|--|----------------------|
| 18PCSPHIP201 | INTER DISCIPLINARY COURSE PRACTICAL I: MULTIMEDIA TOOLS | SEMESTER - II |
|---------------------|--|----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|---|
| CO 1 | Work with retouch, manipulate and compress the given images using multimedia tools. |
| CO 2 | Practice on converting gray image to color image. |
| CO 3 | Practice on various kinds animation as well as video and audio effects. |

| | | |
|-----------------|--|----------------------|
| 18PVE201 | VALUE EDUCATION: HUMAN RIGHTS | SEMESTER - II |
|-----------------|--|----------------------|

COURSE OUTCOMES:

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Understand the core principles of human rights philosophy. |
| CO 2 | Know the importance and functions of human rights commission. |
| CO 3 | Apply their rights for democracy, human rights and gender equality |
| CO 4 | Know the rights from the Governance, economic and social development through various Acts. |
| CO 5 | Understand the right to information Act, rights for women, children, Nomads, refugees and various sector of people in our country. |

| | | |
|-----------------|------------------------------------|----------------------|
| 18PLS201 | CAREER COMPETENCY SKILLS II | SEMESTER - II |
|-----------------|------------------------------------|----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Understand the types of Interviews, Dress Code and Styles. |
| CO 2 | Develop Resume content and structures. |
| CO 3 | Improve body language skills. |
| CO 4 | Know how to represent self through communication. |
| CO 5 | Attain the different level of Learning Skills. |

| | | |
|-----------|--------------------------------|----------------|
| 18PPHM301 | CORE VII: QUANTUM MECHANICS II | SEMESTER - III |
|-----------|--------------------------------|----------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Explain the methods for solving time dependent perturbation systems. |
| CO 2 | Demonstrate the scattering phenomena of alpha particles. |
| CO 3 | Utilize the quantum concept to realize the radiation phenomena. |
| CO 4 | Apply the quantum concepts for relativistic case. |
| CO 5 | Analyze the fields that have more number of identical systems. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | M | M | M | H | M | H | H | H | M |
| CO 2 | M | H | M | M | H | H | H | H | H | M |
| CO 3 | H | H | M | M | H | M | H | H | H | L |
| CO 4 | L | H | L | H | H | M | H | H | H | M |
| CO 5 | L | H | L | H | H | M | H | H | H | M |

H-High; M-Medium; L-Low;

| | | |
|-----------|---------------------------------|----------------|
| 18PPHM302 | CORE VIII: ADVANCED ELECTRONICS | SEMESTER - III |
|-----------|---------------------------------|----------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

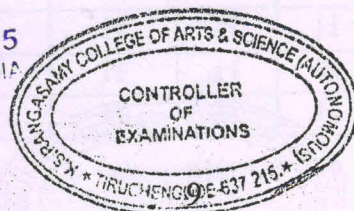
| | |
|------|--|
| CO 1 | Describe the operating principles of special semiconductor devices and Optoelectronic devices. |
| CO 2 | Explain the fabrication of IC's and basic parameters of IC 741. |
| CO 3 | Design the circuit using IC 741 and IC 555 for various applications. |
| CO 4 | Analyze the working of various flip-flops, registers and counters |
| CO 5 | Design the circuits for analog to digital conversion or <i>vice versa</i> . |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | M | M | M | H | H | H | H | L | M |
| CO 2 | H | M | M | M | H | H | H | H | L | M |
| CO 3 | H | H | M | M | H | M | L | H | H | M |
| CO 4 | H | M | L | H | H | M | M | H | H | H |
| CO 5 | H | H | L | H | H | M | H | H | H | H |

H-High; M-Medium; L-Low;

PRINCIPAL
K. S. Rangasamy College of Arts & Science
(Autonomous)
TIRUCHENGODE - 637 215
Tiruchengode - 637 215, Tamil Nadu, INDIA



Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.,
Controller of Examinations

K.S. Rangasamy College of Arts & Science (Autonomous)
Tiruchengode - 637 215, Tamil Nadu, India

| | | |
|-----------|--|-----------------------|
| 18PPHM303 | CORE IX: MICROPROCESSOR AND MICROCONTROLLER | SEMESTER - III |
|-----------|--|-----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|---|
| CO 1 | Explain the fundamentals and architecture 8085 microprocessor. |
| CO 2 | Describe the 8085 instruction set and addressing modes through simple programs. |
| CO 3 | Apply the 8085 microprocessor to interface the various peripheral devices. |
| CO 4 | Describe the architecture, programming and interfacing of 8051 microcontroller. |
| CO 5 | Design the simple program based on microcontroller 8051. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | L | M | M | L | H | M | H | H | L |
| CO 2 | H | M | M | H | M | M | M | H | H | M |
| CO 3 | H | M | M | H | M | M | H | H | H | M |
| CO 4 | H | M | M | H | H | M | H | H | H | M |
| CO 5 | M | H | M | H | H | M | M | H | M | H |

H-High; M-Medium; L-Low;

| | | |
|------------|--|-----------------------|
| 18PPHEL301 | ELECTIVE II: PHYSICS OF NANOSCALE | SEMESTER - III |
|------------|--|-----------------------|

COURSE OUTCOMES (CO)

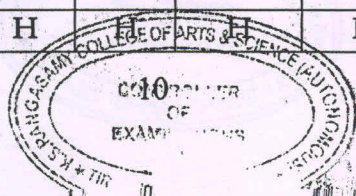
After completion of the course, the students will be able to

| | |
|------|---|
| CO 1 | Explain the fundamentals of nanoscience. |
| CO 2 | Describe the various methods for synthesis of nanoparticles. |
| CO 3 | Analyze the various properties of nanomaterials. |
| CO 4 | Apply the different analytical method for the characterization of nanoparticles |
| CO 5 | Utilize the nanostructured materials for various applications |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | H | H | H | H | H | H | M | M | M | H |
| CO 2 | H | H | H | H | H | H | L | M | M | H |
| CO 3 | H | H | H | H | H | H | M | H | H | H |
| CO 4 | H | H | M | H | H | H | H | H | H | H |
| CO 5 | H | H | M | H | H | H | M | M | M | H |

PRINCIPAL
K. S. Rangasamy College of Arts & Science
(Autonomous)
TIRUCHENGODE - 637 215



Mr. M. PRASAD, M.Sc., M.B.A.,
Controller of Examinations
K. S. Rangasamy College of Arts & Science (Autonomous)
Tiruchengode - 637 215, Tamilnadu, India.

H-High; M-Medium; L-Low;

| | | |
|------------|--|-----------------------|
| 18PPHEL302 | ELECTIVE II: CRYSTAL GROWTH AND THIN FILM PHYSICS | SEMESTER - III |
|------------|--|-----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Explain the fundamentals of crystal and thin film growth. |
| CO 2 | Describe the various solution growth and gel growth techniques for grow single crystals. |
| CO 3 | Demonstrate the various melt and vapour growth techniques for grow single crystals. |
| CO 4 | Apply the different deposition techniques to prepare thin films. |
| CO 5 | Utilize the various analytical methods for characterizing the crystalline materials. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | H | M | H | M | H | H | H | M | M | M |
| CO 2 | M | H | H | H | H | H | M | H | H | M |
| CO 3 | M | H | H | H | H | H | M | H | H | M |
| CO 4 | H | H | L | H | H | H | M | H | H | H |
| CO 5 | H | H | L | H | H | H | M | H | H | H |

H-High; M-Medium; L-Low;

| | | |
|------------|--|-----------------------|
| 18PPHEL303 | ELECTIVE II: INSTRUMENTAL METHODS OF ANALYSIS | SEMESTER - III |
|------------|--|-----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|---|
| CO 1 | Explain the different errors, analysis of experimental data and concept of stress analysis. |
| CO 2 | Describe the principle and working of different analytical methods for thermal analysis. |
| CO 3 | Utilize the X-ray diffraction technique for characterizing the crystals and thin films. |
| CO 4 | Explain the fundamentals of various optical and electron microscopic techniques. |
| CO 5 | Apply the various analytical methods for measuring the electrical properties of materials. |

PRINCIPAL
K.S. Rangasamy College of Arts & Science
(Autonomous)
TIRUCHENGODE - 637 215
Tamil Nadu, INDIA



Mr. M. PRASAD, M.Sc., M.B.A.,
Controller of Examinations
K.S. Rangasamy College of Arts & Science (Autonomous)
Tiruchengode - 637 215, Tamil Nadu, India

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | M | M | M | H | M | H | H | H | M |
| CO 2 | H | H | M | H | H | H | H | H | H | L |
| CO 3 | H | H | M | H | H | H | H | H | H | M |
| CO 4 | H | H | H | H | H | H | H | H | H | H |
| CO 5 | H | H | H | H | H | H | M | H | H | M |

H-High; M-Medium; L-Low;

| | | |
|-------------------|---|-----------------------|
| 18PPHMP301 | CORE PRACTICAL III: ADVANCED ELECTRONICS PRACTICAL | SEMESTER - III |
|-------------------|---|-----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Explain the characteristics of various electronic devices. |
| CO 2 | Design the electronic circuits for simple applications using IC's. |
| CO 3 | Create the program for simple applications based on 8085 and 8051. |

| | | |
|--------------------|--|-----------------------|
| 18PECPHI301 | INTER DISCIPLINARY COURSE II: MODERN BIOMEDICAL INSTRUMENTATION | SEMESTER - III |
|--------------------|--|-----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

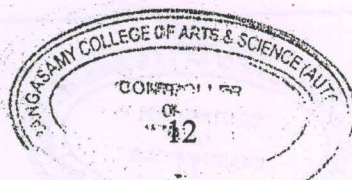
| | |
|------|--|
| CO 1 | Know the fundamentals of human physiological systems and bioelectric potentials. |
| CO 2 | Describe the operations of electrodes and transducers. |
| CO 3 | Explain the types of bioelectric signals and instruments to be used to detect. |
| CO 4 | Evaluate the operation of physiological assist devices. |
| CO 5 | Describe the operation theatre and medical imaging equipments. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | M | M | M | H | H | M | L | M | H |
| CO 2 | H | M | M | M | H | H | H | M | H | H |
| CO 3 | H | H | M | M | H | H | H | M | H | H |
| CO 4 | H | M | L | H | H | M | H | L | H | H |
| CO 5 | H | H | L | H | H | M | M | L | H | H |

H-High; M-Medium; L-Low;

PRINCIPAL
K. S. Rangasamy College of Arts & S
(Autonomous)
TIRUCHENGODE - 637 011
Namakkal-Dt. Tamil Nadu.



Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.
Controller of Examinations
K.S. Rangasamy College of Arts & Science
Tiruchengode - 637 215, Tamil Nadu.

| | | |
|-------------|---|----------------|
| 18PBCPHI301 | INTER DISCIPLINARY COURSE II: MOLECULAR BIOPHYSICS | SEMESTER - III |
|-------------|---|----------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Know the interaction of water molecules with physiological |
| CO 2 | Explain the structure and properties of different carbohydrates molecules |
| CO 3 | Describe about amino acids, protein, methods for determination of proteins |
| CO 4 | Know about lipids and biological membrane. |
| CO 5 | Describe the structure of nucleic acids, DNA and RNA. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | M | M | M | H | H | L | M | H | H |
| CO 2 | M | M | M | M | H | M | L | M | H | H |
| CO 3 | M | M | M | M | H | M | H | H | H | H |
| CO 4 | M | M | L | M | H | M | M | M | H | H |
| CO 5 | L | H | L | L | H | M | M | H | H | H |

H-High; M-Medium; L-Low;

| | | |
|-----------|----------------------|---------------|
| 18PPHM401 | CORE X: SPECTROSCOPY | SEMESTER - IV |
|-----------|----------------------|---------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

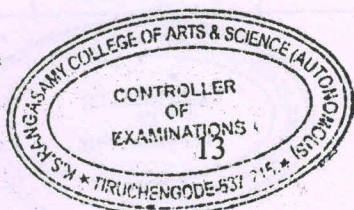
| | |
|------|---|
| CO 1 | Explain the about IR and microwave spectroscopy. |
| CO 2 | Describe the principle, working and application of Raman spectrometer. |
| CO 3 | Analyze the materials using UV and photoluminescence spectroscopy. |
| CO 4 | Analyze the interaction of EM wave with mater under magnetic field. |
| CO 5 | Apply NQR and Mossbauer spectroscopy methods to characterize the materials. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | H | H | H | H | H | H | H | H | H | H |
| CO 2 | H | H | H | H | H | H | H | H | H | H |
| CO 3 | H | H | M | H | H | H | H | H | H | H |
| CO 4 | H | H | H | H | H | H | H | H | H | H |
| CO 5 | H | H | H | H | H | H | H | H | H | M |

H-High; M-Medium; L-Low;

PRINCIPAL
K. S. Rangasamy College of Arts & Science
(Autonomous)
TIRUCHENGODE - 637 215
Namakkal-Dt. Tamil Nadu.



Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.
Controller of Examinations
K.S. Rangasamy College of Arts & Science (Autonomous)
Tiruchengode - 637 215, Tamil Nadu.

| | | |
|-----------|--|----------------------|
| 18PPHM402 | CORE XI: NUCLEAR AND PARTICLE PHYSICS | SEMESTER - IV |
|-----------|--|----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

| | |
|------|--|
| CO 1 | Explain the nuclear structure, binding energy, stability and forces acting on Nucleons |
| CO 2 | Know the various radioactive decay process and the devices which are used to detect them. |
| CO 3 | Analyze the process of nuclear fission and fusion as well as the characteristics of neutron. |
| CO 4 | Analyze the various nuclear reactions and related theories. |
| CO 5 | Know the different types of elementary particles and their interactions. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | H | M | H | H | M | H | H | H | H | H |
| CO 2 | H | M | H | H | M | H | H | H | H | H |
| CO 3 | H | M | H | H | M | H | H | H | H | H |
| CO 4 | H | H | H | H | L | H | H | H | H | H |
| CO 5 | H | H | H | H | L | H | H | H | H | M |

H-High; M-Medium; L-Low;

| | | |
|-----------|--|----------------------|
| 18PPHM403 | CORE XII: COMPUTATIONAL PHYSICS | SEMESTER - IV |
|-----------|--|----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

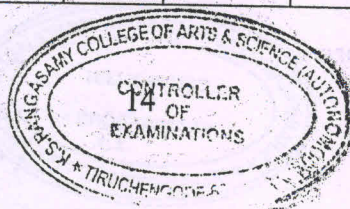
| | |
|------|---|
| CO 1 | Solve the problems using various numerical differentiation methods. |
| CO 2 | Solve the problems using various numerical integration methods. |
| CO 3 | Explain the fundamentals of Matlab. |
| CO 4 | Design the simple Matlab program. |
| CO 5 | Create the different 2D and 3D graphics using Matlab. |

MAPPING

| PO/PSO CO | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PSO 1 | PSO 2 | PSO 3 | PSO 4 | PSO 5 |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| CO 1 | M | M | M | M | H | L | H | H | H | H |
| CO 2 | H | M | M | M | H | L | H | H | H | H |
| CO 3 | H | H | M | M | H | M | H | H | H | H |
| CO 4 | H | M | L | H | H | M | H | H | H | H |
| CO 5 | H | H | L | H | H | M | H | H | H | M |

H-High; M-Medium; L-Low;

PRINCIPAL
A.S. Rangasamy College of Arts & Science
(Autonomous)
TIRUCHENGODE - 637 215
Namakkal-Dt, Tamil Nadu, INDIA



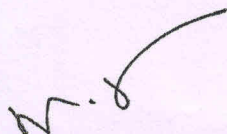
Mr. M. PRASAD, M.Sc., M.B.A., M.Phil.,
Controller of Examinations
K.S. Rangasamy College of Arts & Science (Autonomous)
Tiruchengode, Namakkal District, Tamil Nadu, India.

| | | |
|------------|--|----------------------|
| 18PPHMP401 | CORE PRACTICAL IV: COMPUTATION USING MATLAB | SEMESTER - IV |
|------------|--|----------------------|

COURSE OUTCOMES (CO)

After completion of the course, the students will be able to


| | |
|------|---|
| CO 1 | Compute simple equations such as charging of a capacitor and full wave rectifier equation through Matlab program. |
| CO 2 | Plot the characteristic curve of NPN transistor, diode, RLC circuit, Frequency response curve of low pass filter |
| CO 3 | Find out the solution for differential equation as well as numerical problems. |
| CO 4 | Compute matrix and find out the solution. |


CoE

Mr. M. PRASAD, M.Sc., M.B.A., ...
Controller of Examinations
K.S. Rangasamy College of Arts & Science (Autonomous)
Tiruchengode - 637 215. Tamilnadu, India.




PRINCIPAL


PRINCIPAL
K. S. Rangasamy College of Arts & Science
(Autonomous)
TIRUCHENGODE - 637 215
Namakkal-Dt. Tamil Nadu. INDIA.