Centre for Career Development,
Indian Institute of Technology Guwahati

Placement Brochure

Class of 2024

Department of Physics

Message from Head of the Department

The Department of Physics, Indian Institute of Technology Guwahati, is nearly a quarter century old, and has made its mark at national and international levels. Based on the solid foundation of state of the art undergraduate and masters degree programmes, the department is thriving with cutting edge research done by 40 member strong faculty and over a 100 research students.

The department has lately gained remarkable visibility by producing brilliant undergraduate, masters and Ph.d. students who are employed in various world renowned institutes and industries as well as by being part of numerous collaborative efforts with the leading groups in the areas of condensed matter physics, laser and photonics, high energy physics and gravitation, cosmology and astrophysics.

The department encourages young and brilliant minds to join various programmes of the department and engage themselves in interdisciplinary research by associating themselves with various focused research centres and Engineering departments of IIT Guwahati.

Being a part of the premier technological school of the country, the department offers a broad spectrum of the fabulous innovations and applications of ideas in basic sciences to make an impact in the international arena. Our faculties, research staff and technical support staffs are always eager to explore new ideas and challenges associated with basic and applied physics problems which can make significant contributions to our understanding of the nature.

Indian Institute of Technology, Guwahati

Established in 1994, as an ‘Institute of National Importance’, IIT Guwahati has grown into being a preferred destination for people passionate about learning and innovation. IIT Guwahati has been ranked among the Top 100 Young Universities in the world by the Times Higher Education, one of the two Universities from BRICS nations. IIT Guwahati has several factors contributing to how in a short span of time it has established itself as one of the best institutes of its kind in the country. The programmes and courses that are offered at IIT Guwahati are perpetually evolving to adapt to the ever changing global requirements and along with the diversity of the fields of study, this has helped the institute become one of the nation’s nerve centres for research and development, and technical education. The faculty ensure that the students of the campus are ready to face the challenges of the professional world by providing them with a sound conceptual understanding of their respective disciplines. The institute also offers a plethora of opportunities to students for their holistic development, through the excellent facilities that it has for sports and general extracurricular activities.

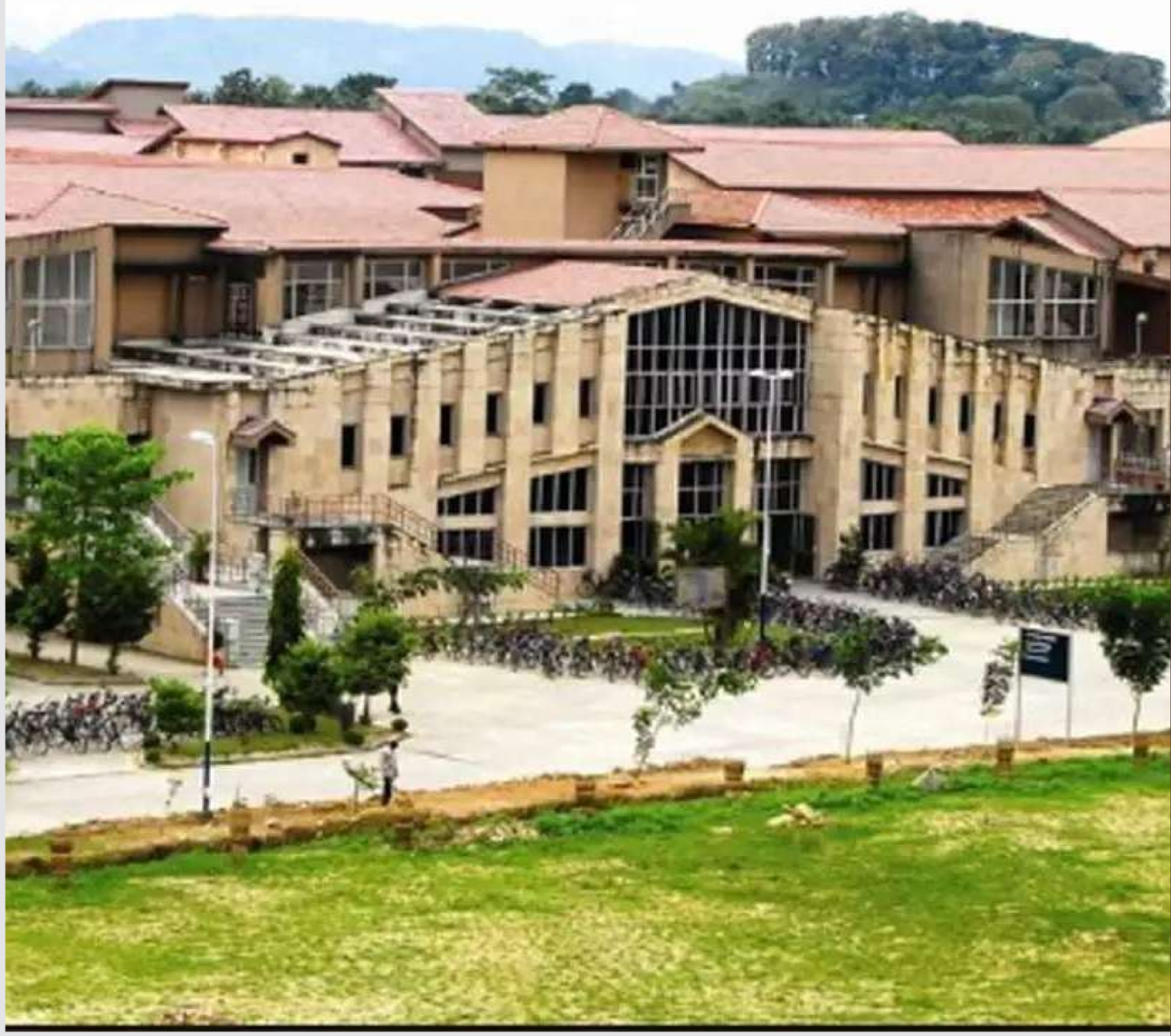
About The Department

Arguably the best academic centres for Physics studies in the northeast India, the Department of Physics provides the right ambiance for any physics student aspiring to build his/her career around Physics. With an excellent team of competent faculty involved in world class research, supported by some of the state-of-the-art research facilities, the Department has made its mark on the map of India and the Globe.

Main research focus areas are Condensed Matter Physics, Laser and Photonics and High Energy Physics in both theoretical as well as experimental fronts. Beyond these, areas in theoretical physics including Gravitation, Astrophysics and Cosmology, Quantum Field Theory and Quantum Computation are also actively pursued by members of the Department.

Apart from frontline research, the Department offers two-year MSc programme in Physics (starting from 2000), and four-year BTech in Engineering Physics (starting from 2006). The number of graduates so far is about 450 (MSc) and 250 (BTech), with present (2018) intake capacity of 48 in each of these programmes.

The active PhD programme in the department is the backbone in supporting the research activities. So far more than 120 students have obtained PhD degrees for their research carried out in the department. The research is also supported by the post-doctoral fellows, selected through the institutes IPDF programme as well as through the National level NPDF scheme.



PROGRAMMES OFFERED

Undergraduate

B.Tech Engineering Physics-
The department of physics started a four year B. Tech. Engineering Physics Program in 2006 to train the bright students as engineer along with essential knowledge on physics and applied physics. In this program, the courses are designed systematically to offer an overall knowledge of physics including experimental techniques with modern equipments. The department also offers specialized courses for the B. Tech. program to provide exposure to the advances in science and technology with deeper insight

LINK :https://www.iitg.ac.in/acad/CourseStructure/Btech2018/EPH.htm

Postgraduate

Master of Science (Physics)-
The department of physics started a two year Master of Science (Physics) Program in 2000. This program is designed with equal emphasis on both classroom lectures and laboratory training with modern equipments. A large fraction of M. Sc. passed out students find their places for higher studies in various prestigious institutes/universities all over the world.

LINK :https://www.iitg.ac.in/phy/pdfdocs/MSc_Physics_syllabus(new).pdf

Doctoral Degree

´Doctor of Philosophy-
Ph. D. program is started in the department since August 1996 both in experimental as well as theoretical physics. Students in this program are trained through rigorous course work covering basic as well as advanced level courses before starting their research work. The major research areas in the department are Condensed Matter Physics (Theory and Experiment), Lasers and Photonics, Theoretical Physics, High Energy Physics and Astrophysics. At present, the strength of research scholars is about 80 and the number is increasing
.
LINK :https://www.iitg.ac.in/phy/pdfdocs/New-Ph-d-structure-for-website18062019.pdf

Engineering Physics and Physics (UG, PG & PHD)

KEY COURSES OFFERED

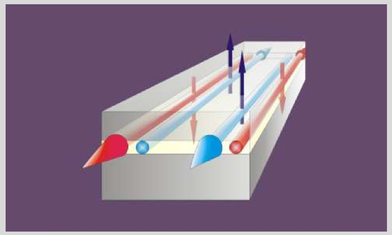
Core Courses-

- Quantum Mechanics
- Computer Programming and Numerical methods
- Classical Mechanics
- Electronics
- Mathematical Physics
- Classical Electrodynamics
- Statistical Mechanics
- Atomic and Molecular Physics
- Solid State Physics
- Nuclear Physics
- General Physics Lab
- Electronics Lab
- Advanced physics lab

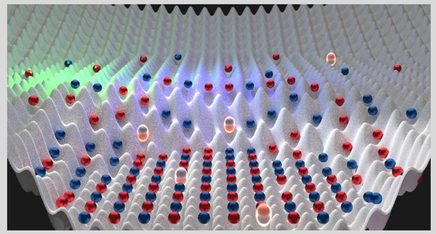
Elective Courses-

- Quantum Field Theory
- Magnetism and Superconductivity
- Soft Condensed Matter
- Spintronics: Physics and Technology
- Quantum Optics
- Semiconductor Physics
- Nonequilibrium Statistical Mechanics
- General Relativity
- Condensed Matter Physics
- Quantum Computation and Information
- Nanostructured materials
- Organic Electronics and optoelectronics
- Nonlinear Optics
- Imaging and Fourier Optics
- Atomistic Simulation Techniques
- Physics around Compact Objects
- Topological Phases of matter
- Statistical Field Theory
- Laser Physics
- Laser Spectroscopy
- String Theory
- High Energy Physics
- Quantum FIeld Theory

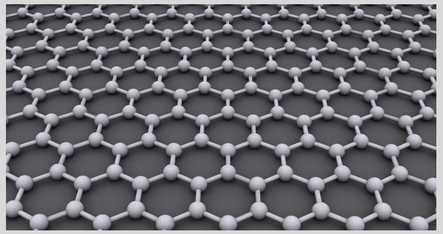
AREAS OF RESEARCH



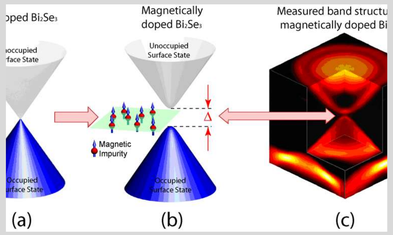
Quantum Hall effect



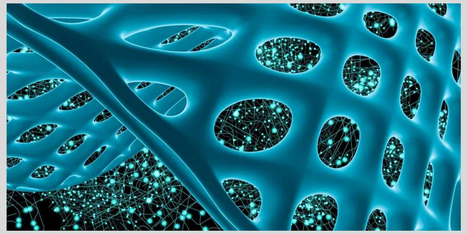
Cold atoms



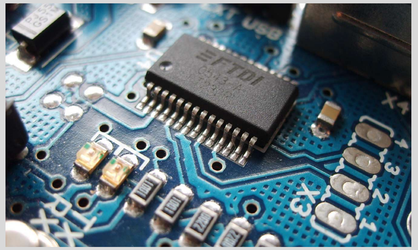
2D materials like Graphene



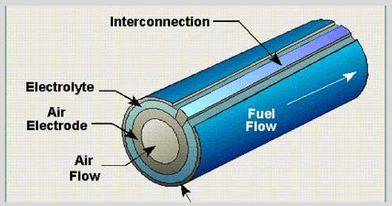
Topological insulators



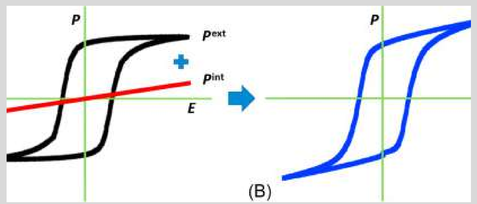
Bio-materials/sensors



Electronic/optoelectronics



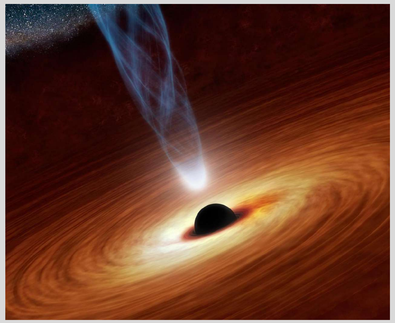
Energy storage



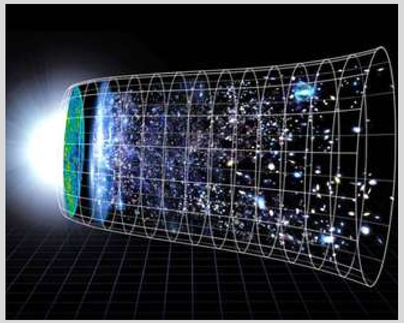
Ferroelectrics

Spintronics

AREAS OF RESEARCH (CONTD.)

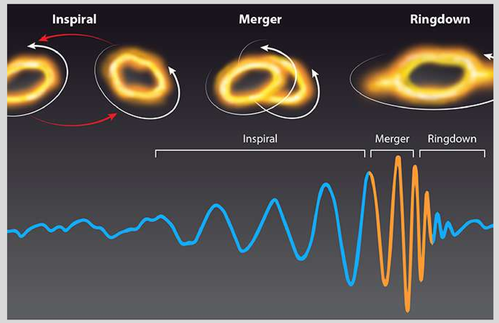


Black hole thermodynamics

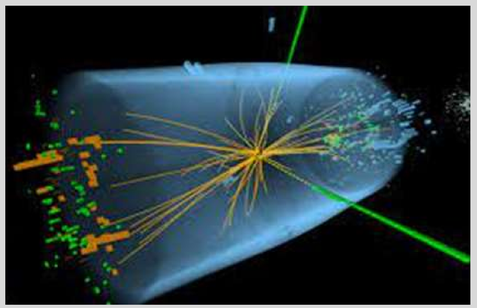


Bounce in the early universe cosmology

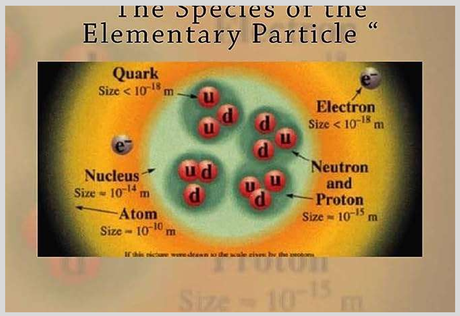
Modeling the dark matter and dark energy



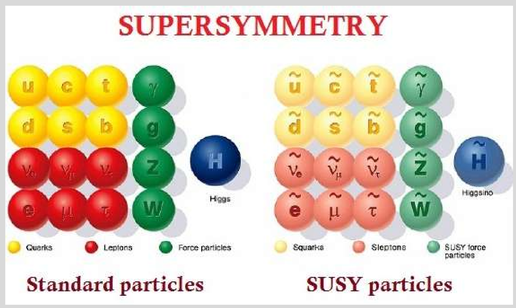
Black hole perturbations



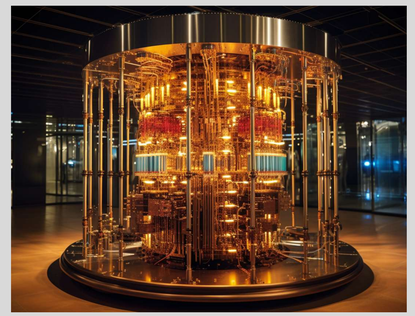
Higgs physics



Flavour physics



Supersymmetry



Quantum Information

LABORATORIES

The department hosts state of the art facilities to conduct solid/ liquid/ gas phase analysis for guiding fundamental and applied Physics research.

Computational Facilities

- Newton Cluster
- PKP Cluster
- NIS Server
- Numerical Lab

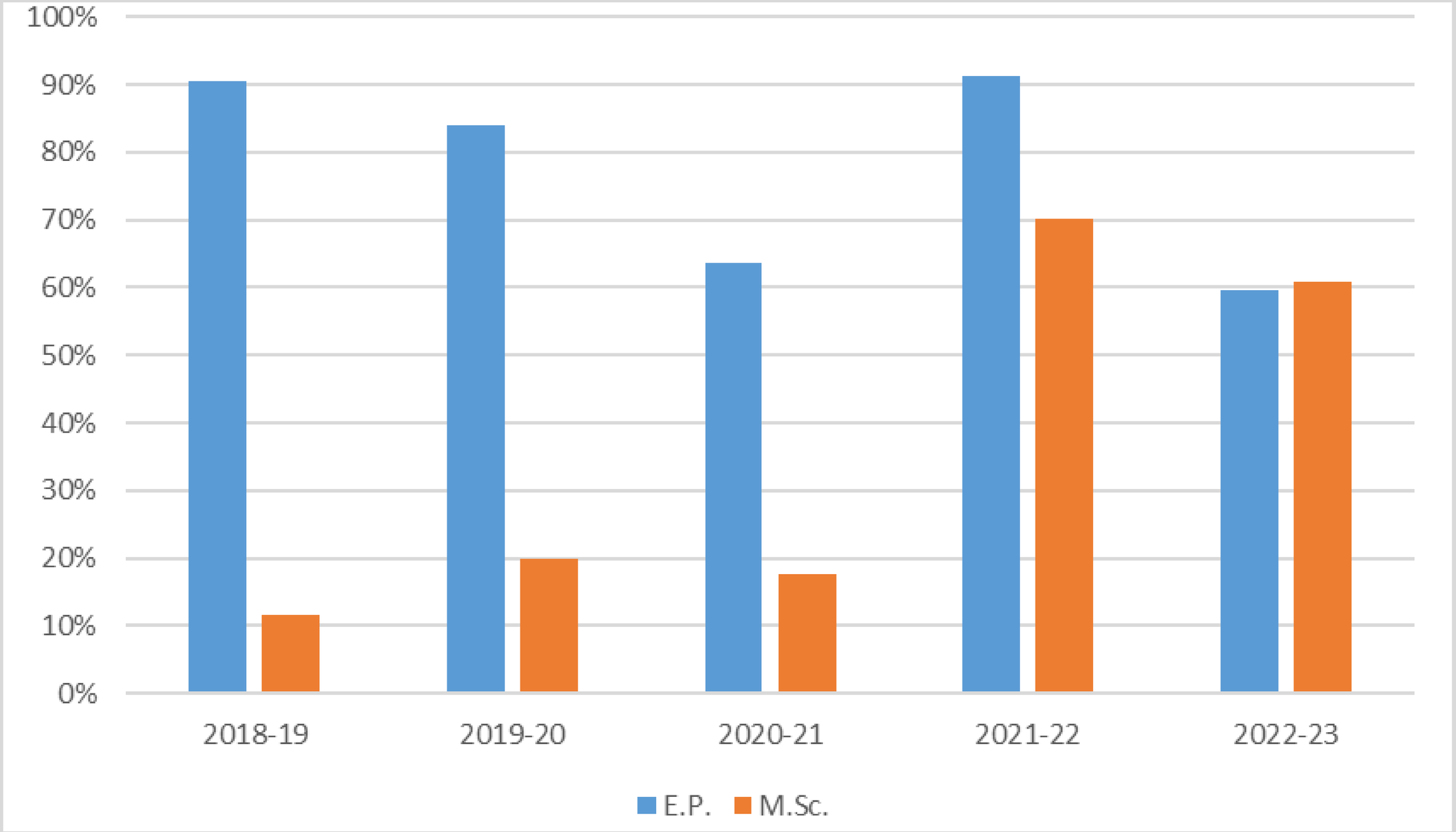
Experimental Facilities

- Rotating Anode X-ray Diffractrometer
- ND-YAG Laser (Model: LPY 7864-10G)
- Laser Ablation Set
- Charge Couple Device (Model : PCO sensicam)
- Magneto-Resistance Setup
- Magnetron Sputtering System
- Monochromator with 450W Xenon Lamp
- Multichamber PECVD and HWCVD System
- Vibrating Sample Magnetometer
- Stylus Surface Profilometer
- UV-VIS-NIR Spectrophotometer
- Ferroelectric Tester
- Fourier Transform Infrared Spectrometer
- Optical Microscope

SPONSORED RESEARCH PROJECTS

TITLE	FUNDING AGENCY
Development of New Techniques of Nano Writing Using Pulsed High Power Laser Interferometry	Ministry of Human Resource Development (MHRD)
Study of Colossal Magneto-resistivity of Pyrochlore Structure Based Materials,	Department of Science and Technology (DST)
Electrical, Optical and Thermal Studies on certain Vanadium Pentoxide based glasses exhibiting majority charge carrier reversal	Council of Scientific and Industrial Research (CSIR)
Controlled growth and studies on semiconductor nanowire heterostructures for solar photovoltaic applications,,	Board of Research in Nuclear Sciences (BRNS)

Placement Statistics of BTech and M.Sc. for past Five years



Past Recruiters'

Uber

FICO™

SOCIETE GENERALE

amazon

zomato

WELLS FARGO

Walmart

sprinklr

Groww

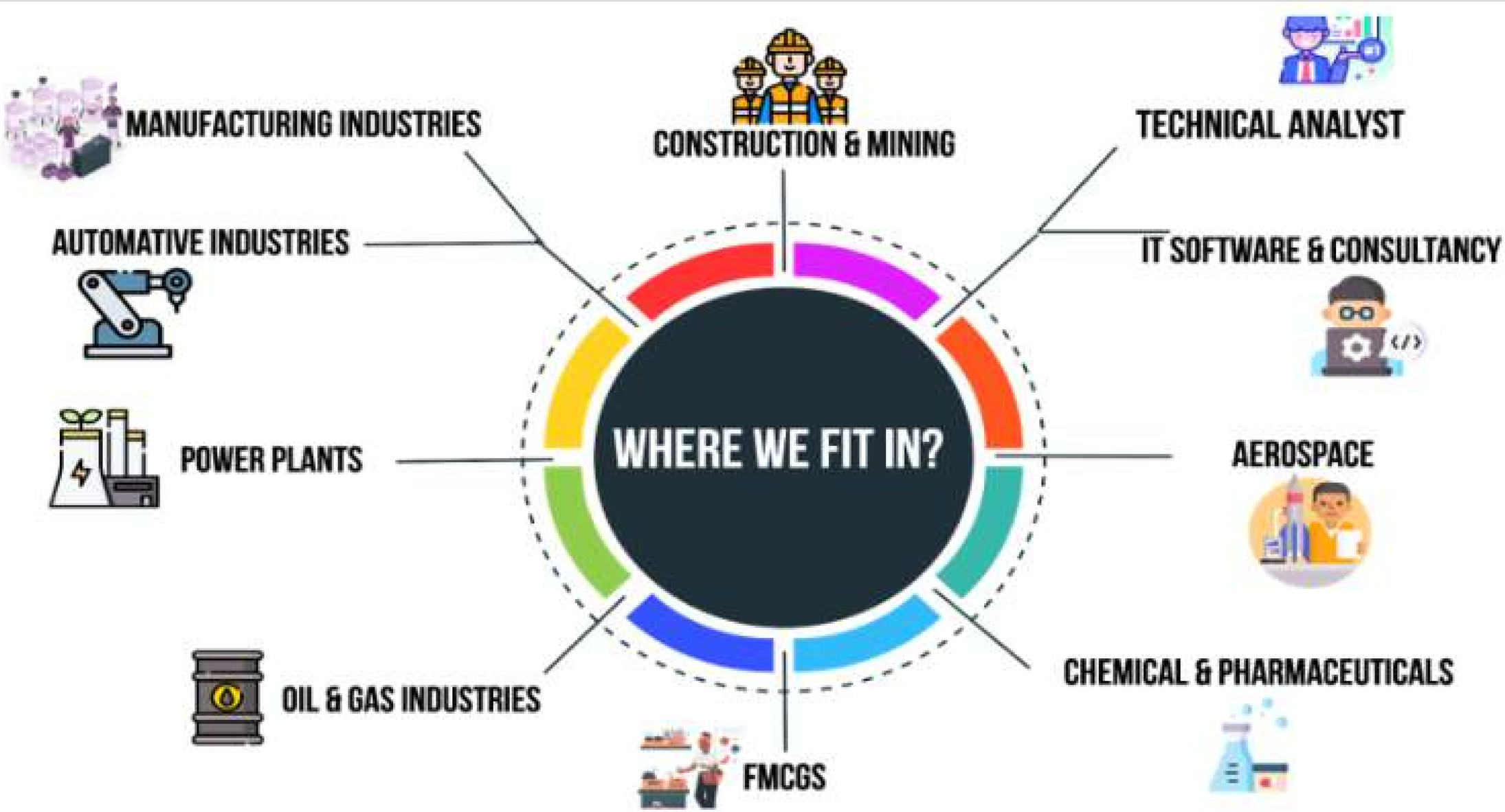
BlackRock

OLA

Adobe

BYJU'S The Learning App

And Many more


MANUFACTURING INDUSTRIES
CONSTRUCTION & MINING
TECHNICAL ANALYST
AUTOMATIVE INDUSTRIES
IT SOFTWARE & CONSULTANCY
WHERE WE FIT IN?
POWER PLANTS
AEROSPACE
OIL & GAS INDUSTRIES
CHEMICAL & PHARMACEUTICALS
FMCGS

CONTACT US

We are looking forward to have you on our Campus.

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