Job ID	Title of the position/ project	A briefing on the type of work/ project with an emphasis on the skills expected.	Name / Email Address	Eligibility / Skills Expected
SIITGOA001A	Solid Impact on Liquid	Experimental, Image analysis, and data analysis	Dr. Arindam Das arindam@iitgoa.ac.in	B.Tech in Mechanical, Chemical, Civil and aerospace engineering. CGPA of at least 8
SIITGOA002A	Spectroscopy and dynamics of photoactive molecules	Several induced processes are known to occur in the marine environment. The studies will involve steady state and time resolved spectroscopic measurements to understand the role of microenvironment on the excited state dynamics of molecules.	Dr. E. Siva Subramaniam Iyer essiyer@iitgoa.ac.in	MSc Chemistry Specialization: Physical Chemistry
SIITGOA003A	Robust and sparse learning strategy for underwater channel estimation	This project explores the development of robust and sparse learning strategies for underwater channel estimation. It involves a literature survey, algorithm development, simulations, and experiments.	Dr. Krishna Kumar krishna@iitgoa.ac.in	B.Tech. final-year student with a strong background in signal processing and hands-on experience in MATLAB. CGPA of at least 8 and above Specialization: EE/EC/ETC/IN
SIITGOA004A	Mechanical Properties of 3D printed Composites under Marine Environment	Student will be studying the effects of saline water absorption on the mechanical properties of materials. You are expected to have exposure to CAD/FEA and 3D printing though not mandatory..	Dr. Sandip Haldar sandip@iitgoa.ac.in	BTech student Percentage at least 50% Specialization: Mechanical, Aerospace, Civil

SIITGOA005A	Automated Identification of Marine Species Using Deep Learning and Computer Vision	This project aims to develop an AI-powered system for identifying and classifying marine species from underwater images and videos. By leveraging deep learning techniques in computer vision, the system will assist in marine biodiversity monitoring, conservation efforts, and ecological research. Key Tasks: 1. Dataset Collection & Preprocessing: i. Gather and annotate underwater images of marine species. ii. Apply image enhancement techniques to improve clarity. 2. Model Development: i. Train a deep learning model (CNN-based) for species classification. ii. Implement object detection models (YOLO, Faster R-CNN) for species localization. 3. Performance Evaluation & Optimization: i. Evaluate model accuracy using metrics like precision, recall, and F1-score. ii. Optimize the model for real-time processing. 4. Deployment & Integration: i. Develop a prototype application for marine researchers to use in the field. ii. Explore edge computing possibilities for onboard drone or underwater camera systems.	Dr. Shitala Prasad shitala@iitgoa.ac.in	Basics of deep learning and computer vision (TensorFlow/PyTorch) CGPA of at least 7.2 Specialization: Image processing techniques (OpenCV) Other: Python programming and data handling (Pandas, NumPy)
SIITGOA006A	Micro-robots based on compliant mechanisms for mechanical testing of diatom chains	Design of compliant mechanisms	Dr. Sreenath Balakrishnan sreenath@iitgoa.ac.in	B.Tech/BS in Mechanical/Biotech - 3rd or 4th year

SIITGOA007A	Simulating the hypervelocity impact on space composites.	A hypervelocity impact on space composites refers to a high-speed collision with a spacecraft structure made of composite materials, like carbon fiber reinforced plastic (CFRP), where the impact occurs at extremely high velocities (typically exceeding several kilometers per second), causing significant damage due to the intense shockwaves and extreme stress levels generated upon impact, potentially leading to penetration, delamination, fiber breakage, and even structural failure. The shock wave, which starts to propagate from the point of impact to the outer boundaries, leads to a significant reduction in overall strength. Instead of adopting experimental techniques, a low-cost and reliable approach is to simulate the behaviour of the whole system using numerical hydro-codes. The objective of this project is to develop a constitutive model of composite material for capturing the shock-dominated response when subjected to hypervelocity impact and to find an optimum layup of the configuration for minimizing the shock induced damage. Prerequisites: Fortran or familiarity with any programming language, LS-Dyna (Preliminary Level). Plan: The student/students should be able to develop a fortran/VUMAT code in LS-Dyna and successfully run that for a few trial configurations.	Dr. Harpreet Singh harpreet@iitgoa.ac.in	BTech (6 semester Completed) CGPA of at least 7 Specialization: Mechanical, Aerospace or Allied
SIITGOA008A	Circuits and Systems for Communication	This project involves hardware implementation of different blocks of communication systems for space application. The interns are expected to have done analog and digital circuits courses. Affinity to communication systems is desirable.	Dr. Nandakumar Nambath npnandakumar@iitgoa.ac.in	Pursuing BTech Specialization: ECE or equivalent

SIITGOA009A	Theoretical Research on Error Correcting Codes	Error correcting codes are widely used in communication to deal with channel anomalies. The quality of the code is determined in terms of the trade off between redundancy in information and performance. The project is about coming up with variants of existing codes which are theoretically better.	Dr. Rahul C S rahulcs@iitgoa.ac.in	BTech/BE in Computer Science or Mathematics related domains CGPA of at least 8 Student is expected to have an affinity towards Abstract Algebra
SIITGOA010A	Ferrocene appended energetic materials for novel solid propellent	The interns will work on synthetic modification of exciting binders. Ferrocene group will be appended to the exciting binder that will improve the properties of the solid propellants. The intern must be adequately trained in synthetic organic chemistry or polymers.	Dr. Raja Mitra rajamitra@iitgoa.ac.in	Completed 2nd year BS-MS/ 1st year MSc in chemistry CGPA of at least 7.5 Chemistry, organic chemistry (desirable)
SIITGOA011A	Building and testing a hyperspectral imager using off the shelf components ad OpenHSI	This project aims to build and test a hyperspectral imaging system using off-the-shelf components and the OpenHSI software platform (OpenHSI Website). The student will work on assembling an optical system, integrating a USB/NIR-sensitive camera with diffraction elements, and configuring OpenHSI for spectral image acquisition and processing. The project will involve calibrating the system, capturing hyperspectral images, and analyzing spectral data for applications such as combustion diagnostics, material characterization, or environmental sensing. The candidate is expected to have basic knowledge of optics, image processing, and programming (Python or MATLAB) and should be comfortable with hardware integration and experimental testing.	Dr. Anirudha Ambekar anirudha@iitgoa.ac.in	Completed B.E. /B. Tech Electrical Engineering, Mechanical Engineering, Physics, or Computer Science CGPA of at least 7
SIITGOA012A	Designing a Non Thermal plasma reactor for Aerospace Application	Experimental, Basic Electrical	Dr. Apeksha Madhukar apeksha@iitgoa.ac.in	BTech 3rd or 4th Year CGPA of at least 7 or more Basic electrical

SIITGOA013A	Revolutionizing Coin Batteries with Halide Perovskites for Sustainable Energy Storage	The demand for alternative and sustainable energy storage materials has become increasingly critical in addressing the global energy crisis. In this project, we aim to explore the potential of transition metal- based halide perovskites (CsTX3, where T is a 3d transition metal and X is a halide) as next-generation electrode materials for rechargeable batteries. These materials have gained significant attention due to their unique structural, electronic, and ionic transport properties, which could enable efficient energy storage applications. The project will involve the fabrication of coin cell batteries using pre-synthesized and well-characterized halide perovskites, followed by comprehensive electrochemical testing to evaluate their charge-discharge performance, cycling stability, and overall efficiency. This study aims to provide valuable insights into the viability of halide perovskites as promising candidates for sustainable energy storage solutions.	Dr. Bidhan Pramanick bidhan@iitgoa.ac.in	BTech in Material Science, Electrical, Electronics, Mechanical, or MSc in Physics, Chemistry are preferred Minimum 3rd year BTech or 2nd year MSc CGPA of at least 7 .
SIITGOA014A	Simulation library and AI based decision aid for CCUS Logistics in the Indian Context	Python programming, Library development based on Python SimPy, Familiarity with GUI design and training flows using Pytorch	Dr. Neha Karanjkar nehak@iitgoa.ac.in	BE 3rd year and above CGPA of at least 7.5 or 75 % and above Any

SIITGOA015A	Synthesis and electrochemical characterization of non-precious metal based electrocatalysts for hydrogen evolution reaction	The hydrogen evolution reaction (HER) is a crucial half-cell reaction in water electrolysis, where water is split into hydrogen and oxygen gases. Achieving efficient HER requires high-performance electrocatalysts to reduce overpotentials and improve the hydrogen production rate. While precious metals like Pt and Ir are considered the best electrocatalysts for HER, their high cost and limited availability present challenges. Therefore, the focus has shifted toward developing non-precious metal materials that are abundant, cost-effective, and efficient. This research aims to synthesize and characterize electrocatalysts made from non-precious metals such as Fe, Co, Ni, Mo, or their alloys and composites, and assess their catalytic activity for HER.	Dr. Ravi Sankannavar ravi@iitgoa.ac.in	B.E./B.Tech, M.Sc. or Dual Degree CGPA of at least 6 or 60% Specialization: Chemical/Nanotechnology/Material Science & Engineering/Chemistry/Electrochemistry/ Allied specialization
SIITGOA016A	Drone to Drone Communication	Direct Communication: Drone-to-drone communication allows UAVs to communicate directly with each other, bypassing the need for a ground control station (GCS) as a central intermediary. Cooperative Operations: This direct communication is crucial for enabling drone swarms, where multiple UAVs can work together to accomplish tasks more efficiently. Data Relay: Drones can also act as communication relays, extending the range of communication and providing connectivity in areas where traditional infrastructure is limited. Mesh Networking: Drone-to-drone communication often utilizes mesh networking or MANET (Mobile Ad-hoc Network) technologies, where each drone acts as a node in a flexible network topology. Expected Skills: Background in Digital Communications, and Digital System Design	Dr. Neelakandan Rajamohan neelakandan@iitgoa.ac.in	B.Tech (6th Sem Completed) CGPA of at least 7 or 70%

SIITGOA017A	Autonomous Camera Drone	A drone is to be designed that can fly autonomously by tracking a person of interest. It can then capture and stream the movements of the person. No operator for flying is to be present.	Dr. Sharad Sinha sharad@iitgoa.ac.in	B.E/B.Tech in CSE, IT, EE, ECE, Instrumentation, Math & Computing CGPA of at least 7.5 out of 10 or 3.5 out of 5; 80% out of 100 Should have knowledge of basic computer vision and embedded systems (Arduino or Raspberry Pi or ST Microcontroller etc.) Prior experience with drones. Programming knowledge in Python and/or C/C++
SIITGOA018A	Unmanned Aerial Vehicles for Air Quality Monitoring	Students will use calibrated low cost sensors in Drones for air quality monitoring. a) Basic coding in Python.	Dr. Thaseem Thajudeen thaseem@iitgoa.ac.in	B Tech. 3 year