2020年度東京海洋大学海洋工学部
編入学（推薦）試験問題

小論文
【海事システム工学科】
〈10:00〜12:00〉

注意事項
1. 小論文（海事システム工学科）の試験では、この問題冊子1部他、解答用紙3枚、下書き用紙1枚を配付します。
2. 解答用紙には、受験番号・氏名を忘れずに記入してください。
3. 試験終了後、問題冊子及び下書き用紙は、持ち帰ってください。

2019年6月14日（金）実施
The report states that new technologies and automation will affect transport sector workers by displacing and creating jobs. However, it may lead to difficult transitions for many employed in the transportation sector. For this reason, the future of work needs to make sure that workers are qualified and re-trained to master new technologies and higher levels of automation.

Regarding autonomous ships, the report suggests that a number of lessons learned have been noted, such as:

- Autonomous ships will not replace conventional cargo ships which could result in the lose of jobs for seafarers. It is expected that autonomous ships will be developed as part of a local transport system, which means they will create new nautical routes as an alternative to other transport modes;
- As the current digitalization of the conventional fleet proceeds, seafarers will need to change to more digital ones, especially in operations monitoring and system management, and in less operational work. Education and training will need to adapt to equip seafarers with the new skills required;
- More plans for autonomous ships can be expected as part of total transport systems that will take place in the next five years;
- In Norway, seafarers working on inland ferries navigating short distances could lose their jobs as autonomous operations emerge. Captains and engineers are at special risk of being moved to shore-based positions, which will limit the need for personnel on board. Changes to technology that allow autonomous operation are already happening in inland ferries.

In order for the seafarer of the future to benefit from digitalization, he/she must combine maritime skills with digital skills in three general domains:

- Data fluency and ability to interpret and analyze large amounts of data;
- Digital operation of equipment such as ships, cranes and winches;
- Software engineering of fundamental programmes and systems.

注)
displacing：転職
autonomous ship：自律船
seafarer：船員
conventional：従来の
digitalization：デジタル化
interpret：解釈する
data fluency：流暢なデータ使い
winch：ウインチ